NORTHROP NEWS

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NORTHROP NEWS

ELECTRONICS DIVISION EDITION

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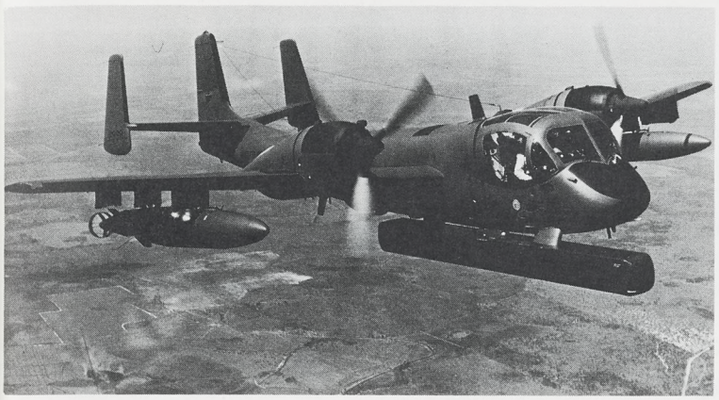


U.S. ARMY OV-1 AIRCRAFT
Chosen for use in joint services reconnaissance system.

JIFDATS Work Expanded To Include OV-1 Aircraft

Electronics Division has been awarded a $3.5 million contract addition covering integration and test of the Joint Services In-Flight Data Transmission System (JIFDATS) in the OV-1 aircraft for the U.S. Army.

JIFDATS is a new concept in airborne reconnaissance data gathering being developed by the Advanced Systems Department, Palos Verdes. JIFDATS collects sensor data in flight, processes, converts and transmits digital information, up to 500 miles via relay aircraft, to surface terminals in near real time.

At the terminals, the information will be reconstituted for viewing by operational commanders who can then make decisions within minutes for quick response against mobile targets.

As prime contractor for the joint services program, Northrop is responsible to the U.S. Naval Air Systems Command for the design and evaluation of the complete JIFDATS system.

The contract was negotiated for the division by Fred Manzella, director of Contracts; John F. Yaccarino, senior contracts administrator; and Burlie Cole, JIFDATS Engineering.

Taie Completes Sloan Program

Al Taie has returned to work in the Electronics Division after completing a full year of intensive study as a Sloan Fellow at the Massachusetts Institute of Technology.

Mr. Taie

Mr. Taie has been assigned as assistant to Dr. V. W. Howard, vice president and manager of the Advanced Systems Department. He previously served as director of Engineering in the Navigation Department.

The 12-month Sloan program is designed to broaden and develop young executives for positions of leadership. Upon his graduation, Mr. Taie was awarded a master of science degree in management.

C-5 Inertial Navigator Selected for AWRS

A contract to build an integrated Omega/Inertial navigation system for a prototype Airborne Weather Reconnaissance System (AWRS) has been received by the Electronics Division from the Kaman Aerospace Corp. of Bloomfield, Conn.

AWRS, which is being developed by Kaman for the U.S. Air Force's Electronic Systems Division, will improve support to non-military groups by providing more detailed information to forecast the path and strengths of severe storms — especially hurricanes.

Information gathered by the AWRS aircraft will be computed in flight, corrected, recorded and transmitted to ground data stations. This will be accomplished through the use of existing and newly developed meteorological sensors with improved data processing, display and communications equipment.

Equipment to be provided by the division includes the inertial navigator, Northrop's ARN-99 Omega receiver/converter, AN/ARN-99 control and display panel and an antenna.

In addition to equipment for the navigation system, the division will also design and build the input/output device for the central computers associated with the weather portion of the AWRS.

"This contract is especially significant to the Navigation Department in that it provides another application for our already-proven C-5 Galaxy inertial navigator," said Mike Turney, director of Business Development.

The prototype AWRS will sub-

(See AWRS, page 6)

MEDICAL TALK SET FOR TONIGHT

Electronics Division's Management Club will meet tonight (Aug. 18) at 7:30 p.m. at the San Pedro Elks Club. The evening will begin with a social hour at 5.

Guest speaker at the event is Betty Seamans, who will talk about the "Golden Age of Medical Quackery."

Free Refreshments, Family Activities On Tap at Second Annual NRC Picnic

Free refreshments will be served to all employees and their families at the second annual Electronics Division NRC Family Picnic Aug. 28 at El Dorado Park in Long Beach.

Employees need to bring only their own basket lunches and a picnic blanket. Everything else will be available free of charge, according to Dennis Mahaney, NRC special events chairman.

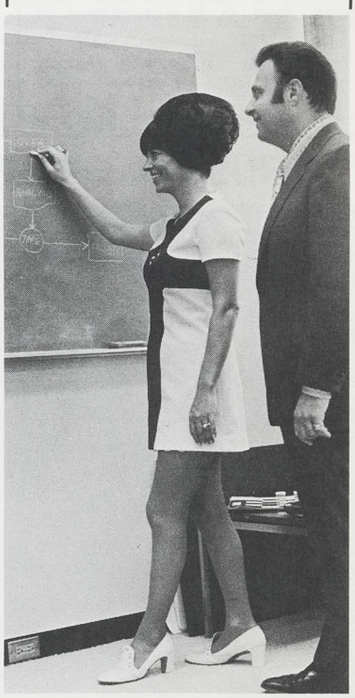
"We plan to have activities for all ages," Mr. Mahaney said. "There will be games for children, such as sack races and water balloon contests, and bingo for the adults. Prizes will be awarded in all events."

In addition to the activities being planned by NRC, a number of recreational outlets within the park will be made available. They include tennis courts, a fishing lake, nature trails, golf course, bicycle lanes, volleyball courts and an archery range.

Also, a special softball game will be played on the park's ball diamond between two of the top teams in the NRC league.

The quickest way to reach El Dorado Park from the Hawthorne facility is via the San Diego and 605 Freeways. Take the Willow Street exit and follow the specially posted NRC signs. The main entrance to the park is located at the intersection of Willow and Studebaker streets.

Award Winner



JOANN MARTIN, Management Systems group, explains operation of new Automated Contract Value Expenditure Report—which earned her $173 under the Northrop Suggestion Awards program —to Roy Graboff, chief, Financial Planning and Control.

Hawaii Seeks Equipment To Test Autos

Northrop's Electro-Mechanical Division has received a contract from the State of Hawaii to provide equipment for a state operated vehicle emission test center in Honolulu.

The equipment provided under the $31,000 contract will be used to set up a test system similar to the Northrop-Olson Auto Emission Test Center in Anaheim.

The center will be a research and evaluation operation for future implementing of Federal emission standards. It will test exhaust gas samples for hydrocarbon and carbon monoxide content. In addition, the center will have a growth capability for adding oxide of nitrogen tests later.

The contract should be completed by late November. It is being administered by the Electro-Mechanical Division's Environmental Systems group with Noble Bishop as project engineer.

HOLIDAY NEAR

Another three-day holiday is coming up for Northrop personnel when company facilities suspend operations Monday, Sept. 6, in observance of Labor Day.

Regular shifts will resume Tuesday, Sept. 7.

NOW BURNING CLEAN NATURAL GAS
Mike Di Curcio fills tanks as Bill Steen applies sticker.

BURN CLEAN NATURAL GAS

Company Vehicles Aid Pollution Cause

Northrop has taken still another step in its continuing fight against air pollution in the Southland by adapting 10 Aircraft Division vehicles to burn natural gas as a fuel.

Natural gas contains no lead, burns cleanly and greatly reduces emission of carbon monoxide, hydrocarbons, oxides of nitrogen and particulate matter in exhausts.

The 10 vehicles include vans, panel wagons and pickups which normally operate between Northrop facilities in the Southland, plus some Plant Protection units.

Each is equipped with a Dual Fuel System unit which enables them to be operated on either natural gas or gasoline. Natural gas storage tanks, refilled from in-plant facilities, carry the vehicles about 100 miles, an average day's driving for each. Each system is comprised of the tanks, regulators to reduce fuel pressure, a gas/air mixer with air filter and a dashboard selector to switch from one type fuel to the other.

In addition to their anti-pollution capabilities, the 10 vehicles cost less to operate on a day-to-day basis.

For example, gasoline costs about 24.1 cents per gallon, while an equivalent amount of natural gas sells for six cents. Oil changes are required at 6,000-mile intervals and spark plug changes at 14,000 miles with gasoline, while with natural gas the change interval is 30,000 and 40,000 miles, respectively. Increased engine life, reduced fuel inventories and tax advantages also add to lower costs.

Over the past five years the division has converted its in-plant vehicles, exclusive of battery-powered units, to burn propane in another move to control air pollution whenever possible.

UNUSUAL GIFT FOR A FOUNDER

MR. AND MRS. JOHN K. NORTHROP were guests of Aircraft Division Management Club recently for Founder's Night. During the evening, Mary Superata, right, presented them with unusual hanging tapestry made of nylon yarn and featuring Flying Wing motif. With them are Dick Greetan, left, club president, and Jake Superata who worked with Mr. Northrop during early days of company.

HONORED BY NASA FOR CONTRIBUTIONS
Joe Bogdanovic, left, and Walt Keller with W. E. Woolwine, center.

BOGDANOVIC, KELLER HONORED BY NASA

Joe Bogdanovic and Walt Keller, Aircraft Division senior technical specialists, have been commended by NASA for contributions in the field of new technology innovations.

Each received a letter of thanks and a $25 check.

During the course of work on a NASA contract held by Northrop, the pair developed a new type liquid flowmeter capable of economically and accurately measuring extremely low flow rates of corrosive fluids. NASA considered the invention important enough to include it in its "Technical Briefs."

Subsequently, a NASA Inventions and Contributions Board reviewed the device and authorized the awards and letters.

Reentry Arc Length Fuze Hardware Is Completed

Electronics Division has successfully completed the hardware portion of the Reentry Arc Length Fuze (RALF) program, according to Herb Stark, program manager.

The $2.7 million Air Force Space and Missile Systems Organization contract called for the design and fabrication of five RALF units over a 26-month period.

RALF is a miniaturized digital computer and sensing device. It is designed for use aboard a number of reentry vehicles.

Mr. Stark stated that the division is presently working on the program under a three-month extension of its original contract, during which time it will provide flight test support for RALF units launched from Vandenberg AFB.

Division personnel working on the RALF program are Tom Pryor, Francis Van Slyke, Paul Bockemohle, Vince DeMartino, Jitsuo Yamamoto, Ron Johnson, Ron Roy, Dick Miller, Don Anderson, Leo Boyd, John Williamson and Bill Hale.

CASTLE TOUR

An NRC Travel Club tour to Hearst Castle, San Simeon, will depart Hawthorne at 9 a.m., Oct. 2, returning the afternoon of Oct. 3.

The $24.50 package cost includes round trip bus transportation, double occupancy room at the Golden Tee and a choice of two tours at Hearst Castle. Meals are not included.

Personnel Activities outlets are accepting reservations which must be paid for by Sept. 22.

BAR CHOICE

Greg P. Stefflre of Spares Control, Aircraft Division, has been accepted for membership and practice by the California State Bar Association. Mr. Stefflre was sworn in on June 29. He received his law degree from Southwestern College.

NORTHROP NIGHT DUCATS ON SALE

Tickets for an exclusive Northrop Night at Magic Mountain are now available, at $4 each, through Northrop ticket outlets at all facilities.

The price includes parking, admission to the new fun center and unlimited use of rides and attractions between 7 p.m. and 1 a. m. Saturday, Sept. 25. Top name entertainment will be presented at the Showcase Theater and is included in the package price.

No tickets will be sold at the gate on Northrop Night.

HARDWARE DELIVERY COMPLETED
Secretary Sheila Bondi displays a RALF device.

Seamanship, Boating Safety Class Slated by Coast Guard Auxiliary

Flotilla 59, United States Coast Guard Auxiliary, has extended an invitation to Northrop personnel to take part in a 12-week Basic Seamanship and Boating Safety class to be held at Leuzinger High School.

The Aircraft Division's Wayne Moles is Flotilla 59 operations officer. He says the class will begin at 6:45 p.m. Sept. 13 and will meet at the same time each Monday. No advanced registration is required.

Flotilla 59 meets the fourth Thursday of each month at NRC Clubhouse, Hawthorne, and is open to Northrop personnel.

HAWAIIAN TOUR

A kickoff meeting for the annual NRC yearend holiday tour to Hawaii is set for 8 p.m. Aug. 27 at the Alondra Club, Lawndale.

Full information on tour activities, entertainment and refreshments will be served.

Brochures describing the yearend tour will be available. Those who like may dine at the Alondra Club prior to the meeting.

Wind Tunnel Tests Verify Design and Performance Characteristics of F-5E

A scale model of Northrop's new F-5E International Fighter aircraft has successfully completed a highly detailed series of transonic and supersonic wind tunnel tests to verify its design and performance characteristics.

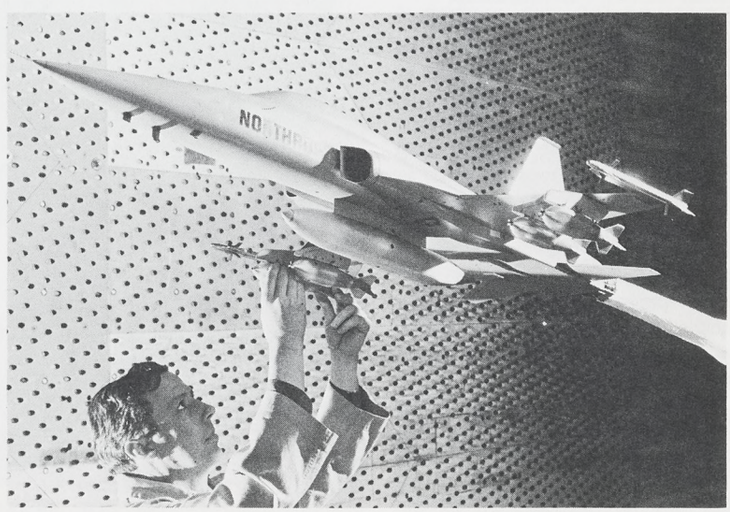
During the tests at the Air Force Systems Command's Arnold Engineering Center, the F-5E model was examined in its "clean" configuration with Sidewinder missiles on the wingtips as well as externally-mounted bombs and fuel tanks.

In the latest version of the Northrop F-5 aircraft, the F-5E's wing area has been increased, the inlet and duct area has been enlarged and the fuselage lengthened.

The test program, which was verified by personnel of ARO, Inc., operating contractor of the center, was completed ahead of schedule.

The F5-E, an advanced version of Northrop's F-5, will be made available to allied countries under the U.S. military assistance program with initial deliveries to Southeast Asian nations.

PREPARING FOR F-5E WIND TUNNEL TESTS



TECHNICIAN ADDS SCALE MODEL EXTERNAL ITEMS

At 17 Michael Woody Is Bronc Riding Champion

Michael Woody, son of an Aircraft Division development mechanic in Advanced Production, is a teenage rodeo champion in the state of Oregon.

Michael has won first place in the 10-17 age bracket of bareback bronco riding at the Basin Rodeo in Klamath Falls, Ore., for two years in a row.

Born and raised in Gardena, he is a true Northrop son. His mother, Eve, also worked at Northrop when he was born 17 years ago.

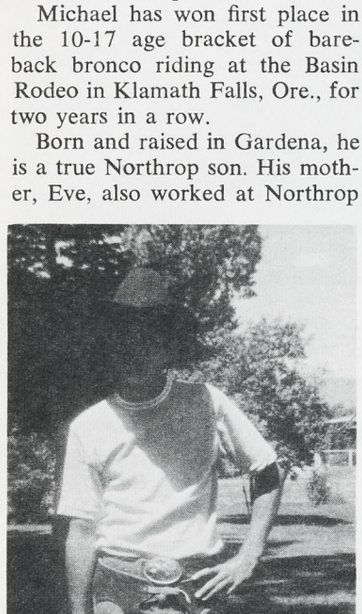
Young Michael enjoyed the usual childhood, his father explained. He was active in Boy Scouts, Little League, and wrestled and swam competitively. "But his main love, though, has always been horses," he said.

Two years ago, on a visit to his sister's home in Klamath Falls, he liked the area so well he decided to stay.

Horses and rodeo are his way of life now. He lives with another sister and her husband in Montana where he is president of the Riding Club at Columbia Falls High School. He'll be a junior there this fall.

"His sights are set on being a national champion and riding at the Cow Palace in San Francisco and the Calgary Stampede in Canada," says his father.

A onetime rodeo contestant himself, his father is looking forward to the day when he can move north and get on the rodeo circuit with his son.



TEENAGE CHAMP
Michael Woody ready to ride.

MC COY NAMED

Vice President John L. McCoy has replaced Vice President M. G. Gonzalez as chairman of the Aircraft Division's General Safety Committee which acts for the general manager in matters involving environmental health and safety.

In urging support of Mr. McCoy in his new duties, General Manager F. W. Lloyd praised the efforts of Mr. Gonzalez and the General Safety Committee over the past year.

Like Cinderella, Tomato Worm Has Beautiful Future

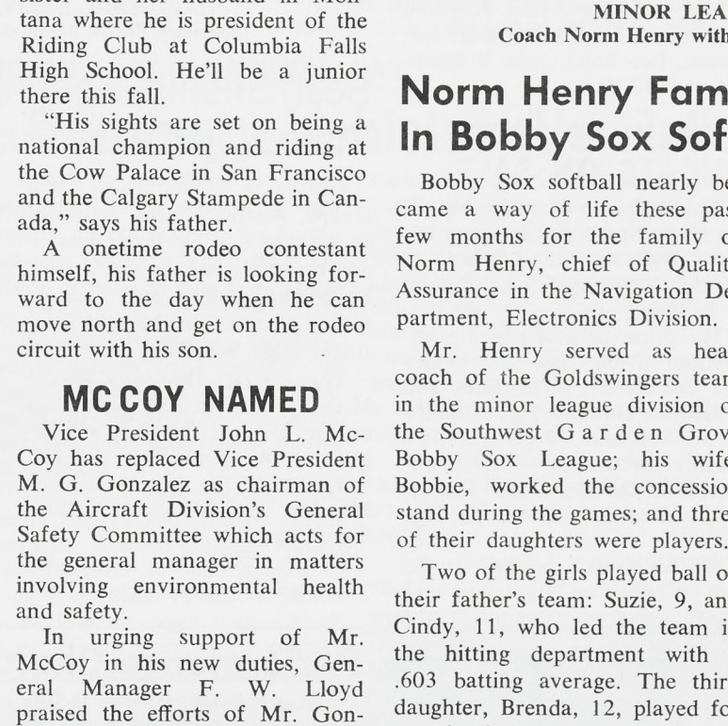
A tomato worm is a horror to gardeners, but a joy to Jon McFadden, Electro-Mechanical Division automobile mechanic.

He collects them and then grows the worms through the pupae stage until they shed their cocoons and turn into large, beautiful Sphinx moths. These he mounts and adds to his collection of butterflies and moths.

He began collecting and mounting butterflies when he was a child and then later added moths to the collection.

He prefers to grow his own moths from larvae and worms because these moths fly at night and are difficult to catch.

"You often see them flying around lamp posts, but they are too high to catch easily," he said. "Also, if you grow your own, they are not as beat up as the wild ones."



OH YOU BEAUTIFUL WORM
Jon McFadden admires tomato worm he is growing.

MINOR LEAGUE CHAMPIONS
Coach Norm Henry with members of the Goldswingers.

Norm Henry Family Finds Relaxation In Bobby Sox Softball Loop Activities

Bobby Sox softball nearly became a way of life these past few months for the family of Norm Henry, chief of Quality Assurance in the Navigation Department, Electronics Division.

Mr. Henry served as head coach of the Goldswingers team in the minor league division of the Southwest Garden Grove Bobby Sox League; his wife, Bobbie, worked the concession stand during the games; and three of their daughters were players.

Two of the girls played ball on their father's team: Suzie, 9, and Cindy, 11, who led the team in the hitting department with a .603 batting average. The third daughter, Brenda, 12, played for a major league team.

"It's been a very rewarding season for the whole family," said Mr. Henry, who also was named to coach the league's all-star team in regional competition. "The Bobby Sox organization is one of the few outlets where a father can participate in organized sports with the female members of his family."

Kathy Riley, 13, Wins State Pole Bending Honors

Kathy Riley, 13-year-old daughter of Jerry Riley, Electro-Mechanical, is the new 1971 State Pole Bending champion.

Pole bending is a horse race over a track 100 yards long where the rider weaves around poles set in the ground.

Kathy and her horse, Rebel, made the double run from a standing start in the remarkable time of 9.60 seconds.

The contest, sponsored by Equestrian Trails group, is open, and Kathy competed against entrants who ranged from teenagers to men and women.

She received a huge trophy to add to the more than one hundred, she, her sister Barbara, her father and mother have won for their riding exploits.

Rebel, the horse, also received recognition for his part in the championship ride. He won a specially inscribed horse blanket.

Classified advertisements for the next issue of Northrop News, to be distributed Sept. 15, may be submitted between Monday, Aug. 30, and noon on Wednesday, Sept. 8.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Station Wagon, 1965 Chevelle, 6-cyl., $400. 213-326-7528.

Mustang, 1970, V-8, 302 h.p., std. trans., d/brakes, $2,200. 213-671-2889.

Sunbeam, 1967 Alpine convt., 4-spd. trans., r/h, $1,000. 213-329-3593.

T-Bird, 1967, d/brakes, radio, p/s, a/c, $1,400. 213-756-3401.

Pontiac, 1966, GTO built 389 4-spd., $1,300. 213-675-1336.

Ford, 1961, a/c, $200. Box 1501.

Mustang, 1966 2+2 Fastback, $1,050. Box 1502.

Volkswagen, 1964, $650. 213-865-5131.

Station Wagon, 1969 Opel Kadette, auto. trans., $1,400. 213-670-9258.

Volkswagen, 1968, sunroof, $1,300. 213-282-0500.

Ford, 1957, 4-dr., new parts, shop manuals, $60. 213-377-4604.

Imperial, 1968, full pwr., a/c, $2,300. 714-828-9243.

GTO, 1965 h/top coupe, new tires, $700. 213-831-5407.

Datsun, 1966 1600 roadster, lug. rack, h/top, $950. 213-542-4927.

T-Bird, 1961, new trans., a/c, p/s, p/b, FM stereo tape, $700 or $650 w/out tape. 714-826-9931.

Dodge 440, 1968, a/c, auto. trans., $1,650. 213-644-2781.

Fiat, 1969 convt., h/top, mag whls., $1,500. 213-830-5284.

Volkswagen, 1966, $750. 714-778-5823.

Chevrolet, 1965, 2-dr., S.S. h/top, a/c, p/s, p/b, $800. Box 1503.

Station Wagon, 1961 Falcon, stick shift, rebit. eng., $275. 714-527-7060.

Corvair, 1960, needs eng. work, $50. 213-679-3889.

Chevrolet, 1958 Impala 2-dr., r/h, p/b, p/s, 348 cu. in., $250. 213-324-9087.

Chevrolet, 1963 Super Sport, p/s, p/b, $500. 213-754-3665.

Valiant, 1960, auto. trans., $175. 213-723-4417.

Volkswagen, 1970, radio, $1,600. 213-346-4018.

Datsun, 1964, 4-dr., r/h, $500. 213-678-9818, 213-671-0351.

Chevelle, 1970 Sup. Spt. convt., 350 h.p., a/c, p/b, p/s, $2,950. 213-670-2098.

Porsche, 1965 SC, near new eng., $3,200. 213-675-1911.

Dune Buggy, & trailer, Ford powered, $500. 213-534-3410.

Volkswagen, 1970, sunroof, $1,600. 213-374-0258.

Buick, 1965 Riviera, full power, a/c, $1,075. 213-425-0581.

Pickup, Chevrolet, ½-ton, 283 V-8, auto. trans., cab-hi camper, $995. 714-776-1023.

Mustang, 1965, 3-spd. trans., $895. 213-423-5690.

Volkswagen, 1965, $600. 714-524-3591.

Honda 600, 1971, still under warranty, $1,250. 213-675-3139.

Chevrolet, 1966 Caprice, a/c, 2-dr., r/h, p/s, V-8 eng., $1,150. 213-428-1129, 213-428-2067.

Miscellaneous For Sale

Sailboat, 26′ o.l., 8′3″ beam, f/glass, radio telephone, 5 h.p. outbd. eng., dacron sail, jib & genoa, sleeps 4, $4,000. 714-772-4103.

Tape Recorder, Concord transistorized stereophonic, 4-track Mod 550, 3-spd. w/instant stop, sep. vol. controls & VU meters, many extras, $95. 213-679-2864.

Condominium, 1,400 sq. ft., 2-bdrm., den, 2 baths, dps., cpts., all elec. security sys., rec. rm., $30,500. 213-674-1400.

Pups, miniature dachshund, 2 black males, 3 mos. old, AKC, $75. 213-377-2637.

Air Conditioning Unit, Sears, for auto, all access., $100. 213-757-7417.

Couch, turquoise, matching chair, $50. 213-820-4134.

Pup, AKC, poodle, 5 mos. old, housebroken, $35. 213-866-4104.

Refrigerator, crosstop freezer, $35. 714-846-2378.

Cartop Carrier, 4′ x 7′ x 18″ deep, fully enc. & waterproof w/lock, $20. 213-375-4574.

Deer Rifle, 30-30 Marlin, carrying strap & ammo, fired 10 times, $65. 213-676-3365.

Miscellaneous For Sale

Boat, 14′ Crestliner, 45 h.p., outbd. Chrysler, elec. start, remote controls, trailer, $900. 213-320-5201.

Receiver, Kenwood TK-140, 150 w, $200. 714-893-7745.

Wedding Rings, yellow gold o/lap design, 7 diamonds, $300. 213-569-6543.

Door Exteriors, 3, w/windows, wood frame, 6, & screens, 2, $20. 213-324-7059.

Typewriter, Royal Standard upright, $20. 213-324-7259.

Shotgun, Winchester mod. 1400, 12 ga., auto., 30″ full choke, $105. 212-860-2305.

Phonograph, Capital high fidelity, 4 spkrs., $50. 213-831-4087.

TV, b&w, Zenith, 23″ console, $25. 213-326-0124.

Piano, Baldwin Acrosonic spinet & bench, mahogany, $475. 213-894-1381.

Sheepskin, acrylic, white, washable, 24″x30″, pad for bedridden person, $3.50. 213-675-2005.

Piano, Gulbransen small studio-type, 46″ long, 56″ high, $400. 213-641-6568.

Camping Equipment, Coleman, $125. 213-398-5179.

Guitar, elec., tune-a-matic bridge, hollow body, $70. 213-377-2570.

Mobile Home, 10x55, 7x22 expando, awnings, skirts, carport, tool shed, 6 yrs. old, $4,500. 213-378-0501.

Barbells, weighing 80 lbs., $10. 213-376-1356.

Crypt, dble., Capistrano Gardens, Inglewood Park Cemetery, $1,050. 213-675-5574.

Table, maple, square, w/louvered doors, $30. 213-325-3865.

Surfboard, 7′ Rick, diamond tail, $55. 213-374-8608.

Cabin, dble. gar. & mobile home, furn. or unfurn., $18,000. 213-424-7351.

Bed, dble., springs & mattress, h/board, night stands, dresser w/mirror, chest of drwrs., $65. 213-675-2514.

House, No. Inglewood, 3-bdrm., patio, lge. fenced yd., $26,500. 213-645-4163.

Stenotype Machine, LaSalle, books & tapes incl., $50. 213-374-6003.

TV, Zenith 21″ b/w, birch console, dual spkrs., $40. 213-671-6692.

Wetsuit, skin diver's type, small, $10. 213-833-4191.

Tires, 2 8.25x14, 4-ply Mohawk, $38. 213-324-8618.

Trailer, 1964, 18′ Kenskill, self-contained, $1,850. 213-675-6020.

Motorcycle, Honda, 1963 300 Dream, 305 cc, $290. 213-679-7584.

Tape Recorder, stereo solid state Sony 560-D, lid spkrs., all access., $150. 213-377-7940.

Hardtop, for Corvette, '63-'67, $175. 213-631-3008.

Porta-Crib, w/pad, $20. 213-326-8455.

Refrigerator, $30. 213-534-1094.

Cabin Cruiser, 16′ Harcraft, 4-whl. tandem tilt trailer, bait tank, 30 h.p. Evinrude, $950. 213-323-7177.

Crib, w/mattress, $20. 213-377-5003.

Boat, 16′, 40 h.p. Mercury outbd. w/elec. starter, bait tank, trailer, $600. 213-374-0118.

Crib, Baby Line, drop sides, mattress, $40. 213-530-0545.

Slide Projector, Argus 500 Electromatic, 35 mm, 100 Airequipt magazines, 3 carrying cases, $100. 213-541-2710.

Washing Machine, $25. 213-676-1856.

Tent Trailer, small, $325. 213-322-3249.

Stroller, $10. 213-328-0450.

Pups, miniature schnauzer, AKC, 7 wks. old, $125. 213-372-7875.

Lamp, lge. Perko, kerosene, $15. 213-645-3690.

Bicycle, child's 10″, & infant seat for adult bike, $15. 213-645-7972.

Punch Bowl, & glasses, $5. 213-376-4831.

Poodles, tiny tot, AKC reg. 2 apricot males, 1 yr. old, $100 ea. 714-546-6714.

Six-Pack, Mopar, set up for 383-440, complete, $100. 213-675-4764.

Motorcycle, 1970 Honda mini 50, $150. 213-374-6793.

Bureau, w/mirror, 6 drwrs., light wood, $15. 213-675-9659.

Motorcycle, 1971 SL 175 Honda, $550. 213-835-6585.

Bedroom Set, orthopedic mattress, $45. 213-323-0985.

Freezer, 16 cu. ft. General Electric No-Frost, 7 mos. old, harvest gold, $275. 213-372-7860.

Airplane, ¼ share, 1953 4-place Piper Tri Pacer, based at Hawthorne Airport, $850. 714-968-1776.

Dining Room Set, pedestal table, w/2 exts., 4 cane back chairs, china breakfront, fruitwood inlaid w/beryl, $375. 714-836-0994.

Miscellaneous For Sale

Washer, Whirlpool w/dryer, gas, white, $150. 213-532-2896.

Motorcycle, BSA 441 Victor, o/hauled, $500. 805-498-2867.

Drafting Table, Mayline, 6′x3½′, oak, $75. 213-670-5035.

House, 2-bdrm., new roof & paint, cpts., dps., lge. yd., assume FHA low int. loan, small dn., will take 2nd for bal., $21,950. 213-327-6373.

Washer, Maytag, & dryer, Sears, elec., $100. 213-327-2353.

Shotgun, 12 ga., Remington auto., shot twice, $135. 213-644-7941.

Signal Generator, mod. 315 Eico, $15. 213-675-2329.

TV Stand, portable, 12″ base, 19″ max. width, $1.50. 213-674-5427.

Racing Bicycle, men's Legi, 10-spd., $150. 213-641-0686.

Swimming Pool, 12′x3′ Doughboy, w/access., used 1 season, $50. 213-325-8175.

Tent Trailer, Apache, Buffalo mod., sleeps 5 or 6, dinette, stove, water, other access., $700. 213-679-4863.

Chalet, Club San Moritz, Crestline, 1,400 sq. ft. on 2 levels, furn., approx. 100′ x 100′ lot w/80′ concrete d/way, sleeps 11, $34,750. Box 1504.

Lot, 75x135, 29 Palms, $1,000. 213-679-2114.

Motorcycle, 1967 CL160 Honda Scrambler, $210. 213-329-2842.

Archery Set, 50# bow & quiver, other access., $30. 213-327-4585.

Motorcycle, 1969 Kawasaki 120TR, $300. 213-372-3827.

Refrigerator, 11.5 cu. ft., G.E., $75. 213-379-4517.

Push Mower, Sears, w/grass catcher, $10. 213-635-7942.

Console, walnut Danish, AM-FM radio & stereo, turntable, Silvertone, $75. 213-323-4729.

Skis, & buckle boots, size 9, used 1 season, $50. 714-846-4598.

Tire, 7:35-14, never used, 4-ply nylon, Sears Hiway Special, $8. 213-378-3529.

Guitar, folk-type, $30. 213-377-6648.

Bicycle, Miss GTO, $15. 714-832-7014.

Sectional, 3-pc., 3 yrs. old, $350. 213-376-2190.

Motorcycle, 1970 CB-175 Honda, $325. 213-377-4481.

Ski Boat, 15′ Chrysler Mustang, 85 h.p. Evinrude outbd. motor, $1,900. 213-670-4702.

Cemetery Lot, Inglewood Memorial Pk., Pine View sec., dble. internment, $700. 213-326-8429.

Bicycle, Peugeot, folding-type, 2-spd., many access., $65. 213-375-5760.

Motorcycle, 1971 Yamaha, 175 cc, still under warranty, $550. 714-521-0073.

Exercise Bicycle, manual, $5. 714-830-3048.

Motorcycle, Honda, 150 cc, elec. start, $175. 213-328-6662.

Motorcycle, 1968 Greeves Challenger, 250 cc, extras, $475. 213-532-7175.

Bedroom Set, antique green, incl. triple dresser w/mirror, 2 night stands, wicker chair, $200. 213-371-7318.

Sofa, green tweed, $40. 213-534-2951.

Tent Trailer, 1970 Puma, water, elec. hookup, bltins, many extras, sleeps 6, $1,195. 714-847-5439.

Wanted to Buy

Mini Bike or small Honda. 213-327-4356.

Bicycle, tandem. 213-371-8879.

VW Camper Tent. 213-322-3823.

Violin, full size for intermediate student. 213-374-2188.

Stereo Receiver. 213-679-7378.

Outboard Motor, 5-10 h.p. w/fwd-neutral-rev., approx. $100. 805-497-2823.

Tickets, 2, to the Pageant of the Masters. 213-679-6982.

For Trade

Dryer, Norge Delux, gas, 1 yr. old, bronze, trade for comparable elec. dryer. 213-677-6233.

Free (To Be Given Away)

Sheep Dog, Australian, 2 yrs. old, b&w, male, needs lge. yd. 213-675-2677.

Pup, weimaraner, male, gray, AKC reg., 18 mos. old. 213-320-6685.

Pups, toy fox terrier. 213-374-5133.

Pups, born June 11, brown & black ones. 213-541-1423.

Kittens, 3, red. 714-524-1376.

Rentals Offered

Home, Lake Arrowhead, 3-bdrm., 2 baths, bch. club privileges, $140 wk., $60 w/end. 213-377-3817.

Rentals Offered

Apt, 2-bdrm., unfurn., gar., refrig., stove, cpts., dps., $135 mo. 213-323-0546.

Cabins, Lake Gregory & Crestline, reserve early, sleeps 6, $65 wk. 213-821-8150.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

House, Bass Lake, $150 wk., $45 w/end. 213-374-3702.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Condominium, Palm Springs area, 2-bdrm., 1 bath, studio apt., air cond., well furn., pool, $60 w/end, 3 days, $100 wk. 213-327-8994, 213-324-5709. G

House, 4-bdrm., family rm., P. V. Pen., fenced front & back yds., lease, $395 mo. 213-377-8969.

Cottage, Ocean Bch., San Diego, near Mission Bay, $75 wk. 714-826-2007.

Cabin, Lake Arrowhead, north shore, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

Rentals Wanted

Cabin, Idyllwild area, 5 days to a wk., for family of 5. 213-325-2952.

Child Care

Babysitting, part time, my home, Inglewood area, days preferred. 213-671-1652.

Personals

Ride Wanted, 7 a.m.-3:42 p.m., Magnolia & Wardlow, Long Beach, Aircraft ext. 4219, 213-424-4891.

Ride Wanted, 7 a.m.-3:42 p.m., Imperial Hwy. & Doty Ave. or Prairie Ave. & 112 St., Inglewood, Aircraft ext. 4716, 213-677-6307.

Ride Wanted, 8 a.m.-4:45 p.m., vicinity of Balboa & Rinaldi, Granada Hills, Aircraft ext. 1708, 213-360-8800.

Need ride home, 4:45 p.m., Mon.-Thurs., to Magnolia on Orangethorpe, will help pay for gas. Electro-Mech. ext. 1106, 714-870-9658.

Thanks to all my friends at Northrop for the luncheon, gifts & party upon my retirement. CHARLIE HUTCHESON.

Mature Woman wanted as occasional companion for elderly lady in pvt. home, meals & lodging w/reasonable stipend in pymt., call 213-377-5936.

I sincerely thank all of my friends & coworkers for the cards, flowers & phone calls during my illness. BEULAH PRIEST.

I wish to extend many thanks to all Northrop personnel who have helped me during the past 12 mos. while u/going a work experience training program. I have many memories to take back to Australia with me. K. WHEATLEY.

To all my friends & associates from the past 29½ yrs., I say thanks, good luck & goodbye. I've retired. BOB LIEBER.

To all our friends at Northrop, our deepest appreciation for the many kind thoughts & beautiful flowers. SYLVIA RAGATZ & FAMILY.

I wish to thank all my friends at Northrop for the flowers & cards during the illness & loss of my mother. OPAL BRIGGS.

We wish to thank all of you for the special help you gave us after Harry's death. KAY & GARY WIRTH.

I wish to express my appreciation for the cards & flowers sent in regard to the recent passing away of my father. JOHN STETTLER.

Boys, ages 7-15, wishing info. concerning enrollment in A.Y.S.O. soccer this season, call 213-675-6233.

Fly & share expenses from Antelope Valley to Hawthorne, daily, 7:42 a.m.-4:42 p.m. 805-948-7424.

We wish to express our heartfelt appreciation & thanks to our many friends, coworkers & NRC for sharing with us the loss of our father, Carl A. Hannum. HELEN KELLY & BOB HANNUM.

I wish to thank my many Northrop friends for the gifts, cards, & good wishes extended to me upon my retirement. MARION FLOWERS.

My sincerest thanks to my many friends for the luncheon & gifts on the occasion of my retirement. LOUISE T. McCULLOCH.

Thank you very much for your donation & all your kindness. THELMA JOHOVICH, JAY & KAREN.

I wish to thank the many friends who participated in the party & gifts upon my retirement. LASSITER B. KEY.

For Sale or Trade

Volkswagen, 1971 sunroof, 3,000 mi., $2,100 or trade for good transportation car. 213-542-7646.

Pickup, 1963 GMC, ¾-ton, 1964 eng. & parts, $900 or trade for VW. 213-370-6896.

Sailboat, 13′ O'Day, American trailer, access., $650 or trade for pickup truck, van or car, will pay difference. 213-837-1625.

Motorcycle, 1967 Honda 305 Scrambler, $350 or trade plus cash for good pickup. 213-378-8798.

Division Wins Contract for Study of Reentry Computer

Electronics Division has received a $934,000 contract from the Air Force Space and Missile Systems Organization, El Segundo, for the analyses and study of an advanced reentry computer.

The 16-month program, designated RC-TOT (Reentry Computer—Trade Offs and Technology), will include investigations of advanced packaging technologies and techniques.

The RC-TOT program will be carried out in the Navigation Department's Digital Systems group, headed by Lou Colombano.

Northrop's capabilities in computer technology and micropackaging techniques will be applied extensively to this program, said Herb Stark of the program office.

Key personnel assigned to the RC-TOT program are Norm Quan, Ray McElroy, Steve Kaneshiro, Boyce Ahlport, Bob Gillingham and Kermit Heid.

NRC Coin Club Stages Show for Library Patrons

Nearly 100 persons attended last month's show of coins and stamps by the Northrop Coin and Stamp Clubs at the Hawthorne Public Library, according to Dick Reamer, Electronics Division NRC Coin Club commissioner.

The two-hour show, which was presented as part of Northrop's continuing community affairs program, included displays of U.S. and foreign coins and medals, stamps of the world and a variety of numismatic and philatelic literature.

"The show was a complete success," said Mr. Reamer. "We are exceptionally proud of the fact that many children present from the Hawthorne community displayed a sincere interest in our work."

Employees Earn Service Awards

The following Electronics Division employees qualified this month for award of either five-10-15 or 20-year Northrop service pins:

Palos Verdes

Twenty years: George Tomblin and William Phillips.

Fifteen years: Donald Smith and Harold Bigelow.

Ten years: Bob Landrum.

Five years: Floriana MacCorkell, Daniel Montesano, Harry Basford, Mary Dahlberg and Kenneth Wohlford.

Hawthorne

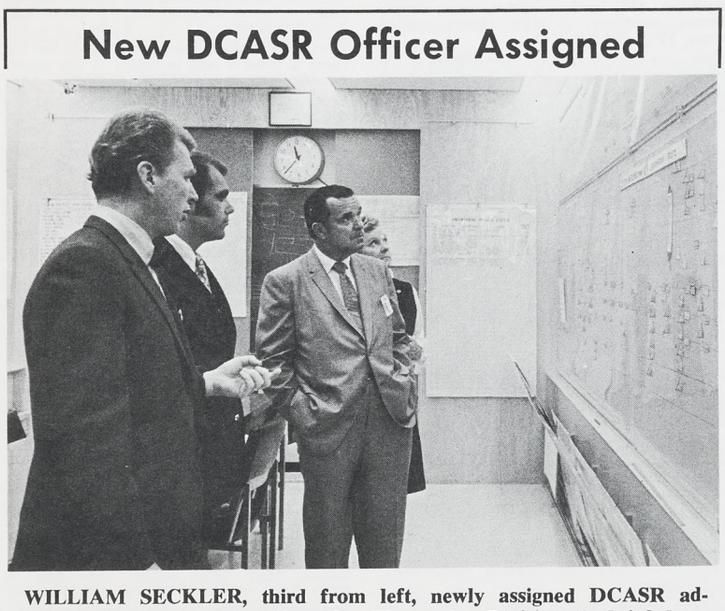
Twenty years: Alice Williams, Stan Collins, D. F. Sanzard, Olive Maillet and Marqua DeGonia.

Fifteen years: Joe Luckey, Robert Hockenberry and Dorothy Penner.

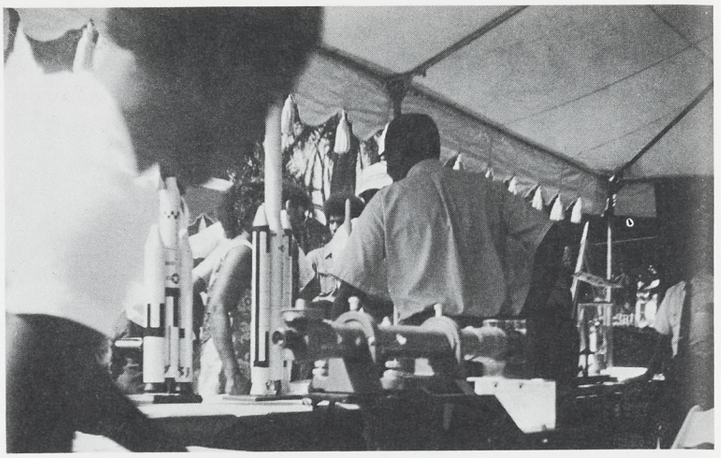
Ten years: William Loomis.

Five years: Mary Tracy, John Wilson, David Lawrence and Sal Pranzo.

New DCASR Officer Assigned



WILLIAM SECKLER, third from left, newly assigned DCASR administrative contracting officer for Electronics Division, is briefed on present programs by Fred Noah, left, and John F. Yaccarino, both of the JIFDATS Contract Administration unit. Looking on is Vicki Grote, also of the DCASR office.



SETTING AT MAC ARTHUR PARK
Aerospace exhibit booth at Festival in Black.

Electronics Employees Participate in Fourth Annual 'Festival in Black'

Four employees from Electronics Division represented Northrop at the Fourth Annual Festival in Black held earlier this month at MacArthur Park in Los Angeles.

Pete Casey, Material and Manufacturing Control, Ron Howard and Dick Hill, of JIFDATS, and Otha "Stubby" Stubblefield, Special Projects, joined other aerospace representatives in answering questions about their respective jobs.

The festival, which drew more than 100,000 people, is designed to exhibit to the community the contributions of the black man to American society.

Course in Principles of Managing Being Offered by Employee Relations

The Principles of Managing, a five-week course designed primarily for supervisors and potential supervisors, will be offered next month by the Employee Relations and Training office.

Classes will be held from 5 to 7:30 p.m., Tuesdays and Thursdays, beginning Sept. 21 in the executive conference room at the Hawthorne facility.

Particular emphasis will be placed on the fundamental management process, including the functions of planning, organizing, motivating and controlling, according to Jud Morris, class instructor.

Enrollment is limited to the first 25 applicants. Reservations can be made by calling Judy Rittscher, ext. 461, Palos Verdes.

PARKER FINISHES UCLA TRAINING

Henry F. Parker, a senior engineer in the C-5 Development unit, was recently awarded a professional designation in the Technology of Information Management by UCLA's University Extension.

Mr. Parker completed eight specialized courses to win his designation, which is given in cooperation with local chapters of the Association of Computing Machinery, Data Processing Management Association and the Systems and Procedures Association.

All of his studies were accomplished under the Northrop Educational Refund program. This plan allows for up to 100 per cent reimbursement for job related courses.

AWRS CONTRACT

(Continued from page 1)

sequently be installed aboard a USAF WC-130 aircraft, which is the mainstay of the Air Weather Service fleet.

Key division personnel who contributed to the AWRS proposal effort included Mr. Turney, Fred Woods, Jim Meagher, Fred Lackner, John Lukesh, Joe Sagachui, Maury Bernstein, Lowell Dubberke, Len Urban, and Ron Casapula.

BLOOD BANK SET

The Blood Bank will be at the Palos Verdes facility from 9 a.m. to 1:30 p.m., Wednesday, Sept. 8, according to Industrial Nurse Arnah Pakes. Donations will be made in the lobby of Building Two. Employees can register for the drive with their respective department clerks.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Northrop Corporation, Los Angeles, California Vol. 29, No. 16 September 15, 1971

Art Festival Planned at PV Facility

Electronics Division's Palos Verdes facility has again been selected as the site for the annual Palos Verdes Community Arts Festival — Art For Fun(d)s Sake —Oct. 9-10, from 10 a.m. to 5 p.m.

The festival—billed as the largest Southern California gathering of artists and craftsmen who demonstrate their skills as well as exhibit their work—features activities for all ages.

Northrop employees, along with their immediate families, will be admitted free upon presentation of their company identification badge.

Highlights of this year's festival will include an art auction, a special water sculpture exhibit and Focus '71 — an exploration of the art of today, parent of the art of tomorrow.

Also on tap are performances by a noted harpist, Scottish Highland dancers and bagpipe players, and a modern jazz quartet which will offer their own renditions of renaissance music.

Three Employees Complete Training

Three Navigation Department employees recently completed an intensive 12-month correspondence course on National Security Management. They are Elmer Baldwin, Dick Conrad and Bernie Davis.

The course is offered by the College of the Armed Forces at no cost to participants. Each student who successfully completes the program is permitted to retain the set of textbooks for his personal library.

Some of the topics covered in the course include the role of the United States in the world community; economic capabilities of the United States resource bases; and national policies including foreign economic policies, collective defense and foreign assistance programs.

Employees interested in enrolling in the study program can contact Jud Morris, ext. 588, Palos Verdes.

LISTENING AND LEARNING
Children do a little of both at the Holly Park Library.

New Audio Listening Center Attracts Many Children to Holly Park Library

The new Audio Listening Center at the Holly Park Library, donated by employees of the Navigation Department, is fast becoming one of the library's most popular attractions.

The new center, which has the potential for both educational and recreational listening and recording activities, has been in operation for several weeks. During that time many young children have visited the library to listen to cassette recordings and to record their own voices.

"The response has been very gratifying," said Dennis Martin, Holly Park librarian. "The listening center has stimulated much interest in the community. Many children read books while they listen to music."

Funds to equip the center were raised by NRC members during the recent clean-up campaign in the Navigation Department. Spearheaded by Dick Miller, Don Caughlin, Otha "Stubby" Stubblefield and Sal Pranzo, the club sold enough surplus paper for them to purchase three tape recorders, two amplifier units, 12 headsets and 25 blank tape cassettes.

The tables and the necessary sheet metal to house the equipment was provided by the Navigation Department. Employees donated their free time to design, wire and install the components.

"We are very pleased with the outcome of this project," said Mr. Miller. "In fact, we plan to continue selling excess paper in hopes of expanding the center at a later date."

Future plans call for additional tape recordings, earphones and cassettes as the demand for them increases. Teachers and parents in the local community will be asked to record some of their favorite stories for children to listen to in the library.

"What started with the generosity of Navigation Department employees may become a community-wide project," said Mr. Martin. "This will in turn enhance the image of the library among the young people."

Division Wins $3 Million C-5 Contract

Electronics Division has been awarded a $2,915,300 contract to provide spare parts for the Northrop-built inertial navigation equipment used on the giant C-5 Galaxy.

The new contract is the first to be received by the division directly from the U.S. Air Force. Previous awards were made by the Lockheed-Georgia Company, prime contractor, which had responsibility for initial spare parts procurement.

The spare parts order is one of the Air Force's first steps to establish a complete in-house repair activity for the C-5, according to Warren Dean, chief of C-5 Contracts for the Navigation Department.

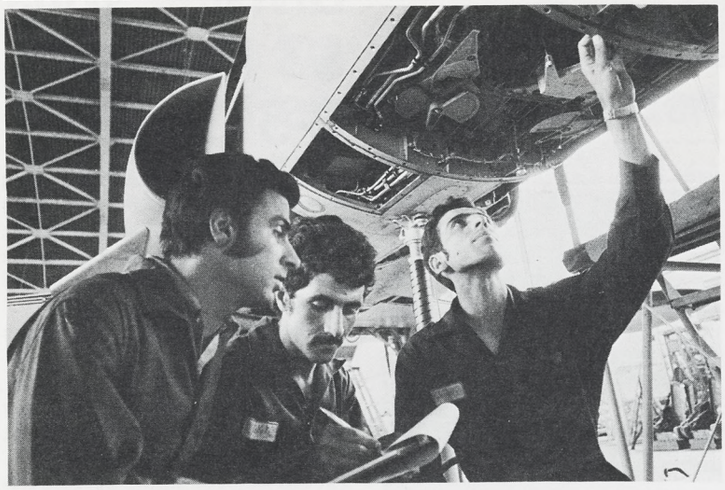
"All equipment built under this pact will be delivered to Kelly AFB, Tex., which has been established as the prime depot responsible for supporting all C-5 aircraft in the Air Force inventory," he said.

Key personnel in the Spares Support and Contracts organizations assigned to the Spares Support program include Gary Lewis, Jerry Brown, Tom Kornegay, L. R. "Dick" Baggett, Laura Lowther, Dick DeFussi and Don Doveatt.

'BALLOWEEN' SET

Aircraft and Electronics Division NRC Councils are joining forces to sponsor a big Balloween (a dance, that is) to be held Oct. 23 starting at 9 p.m., at the NRC Clubhouse, 12329 Crenshaw, Hawthorne. Tickets are $3.

ELECTRONICS DIVISION Accounting personnel recently held a smorgasbord luncheon to celebrate the second anniversary of their move from Anaheim to Palos Verdes. More than 50 employees attended the event.



FROM LEFT, JEHANGIR KERMANI, ALI AKBAR PAKDEL, HUSHANG SAMIE

Iranian Technicians Earn Promotions in New Firm

Iran Air Craft Industries (IACI) has promoted its first three Iranian technicians—Jehangir Kermani, Ali Akbar Pakdel and Hushang Samie—to technical management slots as dock chiefs.

"The promotions epitomize the development of Iranian technicians as rapidly as training and the expansion of business will permit," said Bob Rolfe, IACI managing director.

IACI, in which Northrop holds a 49 per cent interest, is currently working out of a government hangar at Tehran's Mehrabad International Airport pending completion of company facilities at the same locale, now scheduled for May 1972.

Slated to become one of the major centers between Rome and Tokyo for maintenance, repair and overhaul of aircraft and engines, IACI is expected to employ 1,000 persons by the end of 1973.

Iran's Civil Aviation Training Organization produces trained graduates for Iranian aviation and IACI draws a portion of graduates each year. Dock Chiefs Pakdel and Samie are graduates of the school, while Dock Chief Kermani was trained in the United States.

Dr. Wortman to Study in Poland

Dr. Andrew Wortman, Aircraft Division engineering specialist, has been selected by the National Academy of Sciences for a 12-month research project in Poland.

This special exchange program is sponsored by the academy in the United States and the Polish Academy of Sciences. Dr. Wortman will center his research activities at the Institute for Fundamental Technical Studies in Warsaw.

A native of Poland, Dr. Wortman left there with his family in 1939, living in Russia, Iran, India and England, before coming to the United States in 1951. He completed studies for bachelor and master of science degrees at the University of California at Berkeley and earned his doctorate at UCLA in 1969.

TALKS PROGRESS WITH FULLER CO.

Northrop Corporation and the George A. Fuller Company are currently engaged in discussions regarding the possible acquisition by Northrop of the New York-based firm.

The Fuller firm, privately owned, has for many years been a leading building construction firm with annual sales currently in excess of $150 million a year.

The acquisition is contingent on the Fuller Co. meeting stringent conditions. If consummated, the acquisition would be for cash and would involve no public funding.

INSTRUCTOR

David R. Apodaca, Aircraft Division engineering specialist, will teach a special course in the Metallurgy of Stainless Steel to be offered over a 12-week period, beginning Sept. 22, at a downtown location.

Sponsored by the American Society for Metals, the course costs $40 for members of ASM and $45 for non-members.

'Package' of Spare Parts Rolls Out Quickly to Aid Repairs on Damaged 747

A highly successful team effort has helped Northrop put together and ship, ahead of schedule, one of the largest "packages" of spare parts ever assembled for a single aircraft.

That aircraft, Pan Am's first 747, was extensively damaged in a mishap July 30 at San Francisco International Airport. It is now being repaired in an around-the-clock operation.

Two key factors figured prominently in the successful effort.

One is the mutual respect and confidence shared by Northrop and the Boeing Company on the total 747 Program. The other is the outstanding job performed by Northrop Aircraft Division personnel in Program Management, Spares Management, Engineering, Manufacturing and Planning organizations.

As Boeing and Pan Am discussed repair operations for the 747 and accident investigators studied the mishap, Northrop personnel moved quickly to analyze the damage reports. From these reports came a detailed list of parts and assemblies Northrop felt were necessary for repairs. Boeing quickly verified these findings.

Thus, when the official work go-ahead on August 17 was received, Northrop had already commenced action. On Saturday, Aug. 21, the first shipment of repair parts was dispatched directly to San Francisco. Subsequent shipments followed in short order so that by the end of August most of the needed items were on their way or on hand at the repair site.

Since initial damage reports were necessarily incomplete, Northrop is now working under an open purchase order to add additional items, as discovered, to finish the job.

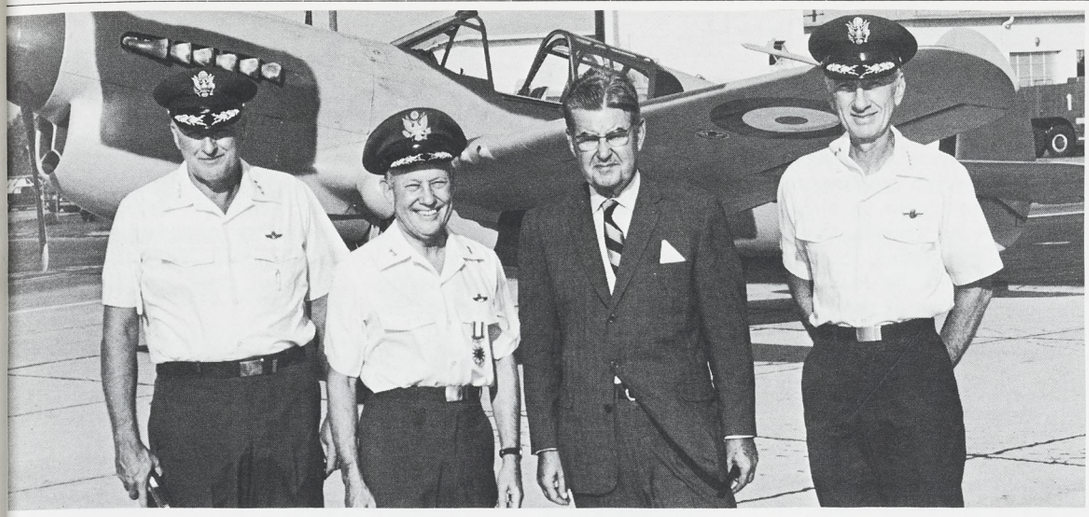
More than 600 individual parts and items have been included in shipments, ranging from nuts and bolts hardware to complete assemblies, like a 3,600-pound lower bonnet assembly for section 46 of the Boeing 747.

Northrop preliminary detailed planning made possible the diversion of regular production parts and assemblies to the hurry-up repair requirements, with subsequent schedule adjustments making up for the diverted systems.

Many Northrop employees played a direct part in the dispatching of the spare items in addition to the Aircraft Division personnel. Examples include wing-to-body fairings by Ventura, floor beams by Electro-Mechanical, and floor panels by Northrop Pacific. Coordination, planning and shipping involved still others.

Plaudits from many sources have been received for the prompt and thorough assistance Northrop has provided in the program to date.

NORTHROP MEMBERS of the F-5 1,000-Hour Club hold models presented by Aircraft Division Vice President Milt Kuska. Hank Chouteau, center, is Northrop's chief test pilot. Donald Crane is retired USAF pilot now in Current Aircraft Systems Requirements. He helped set up F-5 training operation at Williams AFB in 1964, served there as instructor pilot and in South Vietnam as an F-5 advisor.



JOHN R. ALISON ENDS 35-YEAR MILITARY CAREER
From Left, Lt. Gen. Paul K. Carlton, Maj. Gen. John R. Alison, Gen. Curtis E. LeMay (Ret.), Gen. Bruce K. Holloway. USAF photo.

PARADE, FLYOVER

John Alison Caps Long Military Career

A distinguished military career spanning 35 years was culminated last month during ceremonies at March Air Force Base marking the retirement of Maj. Gen. John R. Alison.

Gen. Bruce K. Holloway, commander, Strategic Air Command, presented General Alison the Distinguished Service Medal, the nation's highest peacetime decoration during the event which included a parade and flyover of military aircraft, including a World War II P-40.

The medal recognized that General Alison "distinguished himself as mobilization assistant to the commander, Fifteenth Air Force, from Sept. 1, 1960 to May 23, 1971."

General Alison, who joined Northrop in 1953, is Northrop Corporation vice president for Customer Relations.

In 1937, General Alison entered the Army Air Corps and was commissioned a second lieutenant after graduation from flying school.

During World War II, he served in England, Russia (training Russian pilots), the Southwest Pacific and the China-Burma-India Theater. In the latter, he flew with Gen. Claire Chennault's famed "Flying Tigers," earning recognition as an "ace" for destroying seven enemy aircraft.

General Alison left active duty in 1946 with the rank of colonel. Continuing as a reservist, he earned his first star in 1957 and his second in 1959.

In civilian life, General Alison served as assistant secretary of Commerce for Air, as a member of the National Advisory Committee for Aeronautics and as a consultant to the National Security Resources Board on the use of commercial aircraft in time of war.

Finals Near for NMS Competition

Semi-finalists in the National Merit Scholarship Corporation competition to select 1972 Merit Scholars will be named for the first time next week (Sept. 22).

Among the select group—there are about 15,000 semi-finalists from approximately 700,000 students who entered the competition 18 months ago—will be sons and daughters of Northrop employees.

Northrop is again supporting the program by making scholarships available for presentations to sons and daughters of its employees. However, Northrop plays no role in the selection process which is carried out by the non-profit corporation.

Semi-finalists named must take the Scholastic Aptitude Test of the College Entrance Examination Board no later than Nov. 6. And they must supply personal information and receive the endorsement of their school principal.

RECIPES ANYONE?

Friday (Sept. 17) is the deadline for submitting your favorite recipe for possible inclusion in a Northrop Cookbook.

A group of Electronics Division women employees plan to publish the cookbook this fall and sell it for a nominal amount. Proceeds will be used for charitable purposes.

Those interested in taking part are invited to send their favorite recipe, along with their name and division affiliation, to COOKBOOK, 170/62.

NRC NIGHT NEAR

Final calls for families interested in taking part in NRC Night at Magic Mountain are being sounded this week. The date is Sept. 25 starting at 7 p.m.

Tickets, available at all Personnel Activities outlets, sell for $4 and entitle the holder to free parking, admission and unlimited use of all facilities, plus an opportunity to see top name entertainment at the new fun center. Bobby Darin will head this show.

Reprints of Articles Are Available

Limited quantities of reprints of three articles about Northrop and its products are available to personnel through Corporate Public Relations and Advertising, Century City.

Robert R. Ropelewski has written an article titled "F-5E Keyed to Agility for Combat," which appeared in the July 12 issue of Aviation Week and Space Technology.

The article covers in detail many of the features of the F-5E and its capabilities, including planned flight test schedules.

The August issue of Cockpit magazine featured an article on Northrop, its beginning, history, unique methods of planning and marketing and the success features of key products.

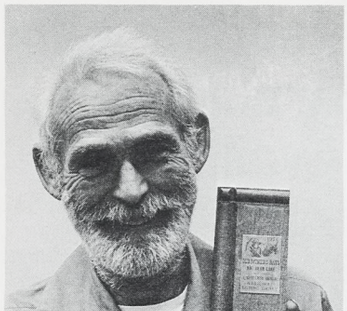
Pilot's Viewpoint

Captains David R. Croft and Robert W. Wickman co-authored an Air Force Magazine article titled "I Fly The T-38" which appeared in August. Written from an instructor pilot's viewpoint, the article traces the uses of and success attained with the T-38.

Some indication of the two Air Force pilots' respect for the much-used supersonic trainer is evidenced in the final paragraph which reads:

"It's a matter of pride to know you are flying one of the best airplanes in the world—a bird that's beautiful, clean, white, sleek, aesthetically pleasing. It's an airplane that demands respect and instills pride. You don't mind telling people, 'I fly the T-38' ."

AV WEEK WRITER GETS F-5 CHECK-OUT PLAQUE
From left, Lt. Col. Roy Holbrook, Robert Ropelewski, Lt. Col. John Potter.



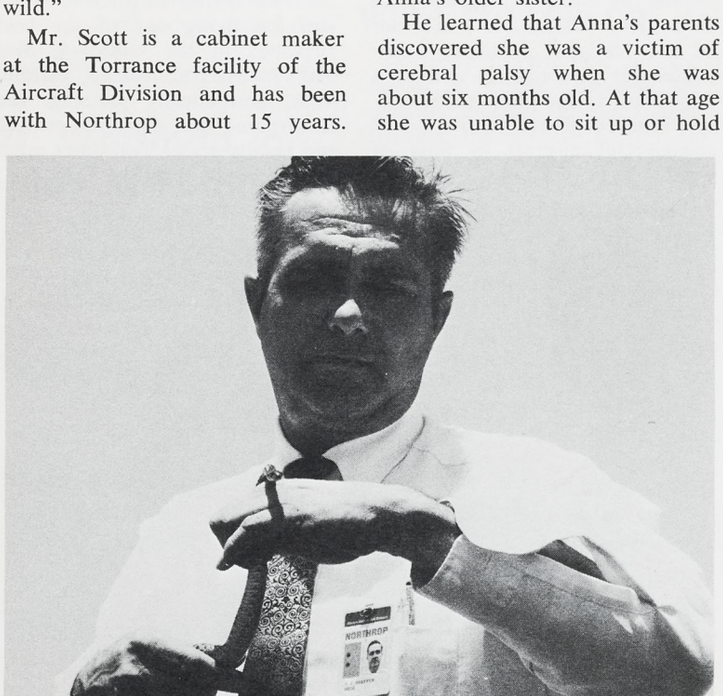
SCOTTY SCOTT, TROPHY

Scotty Scott Is Old Miners' Day Whisker Champ

"I won by a whisker," said Charles "Scotty" Scott, as he displayed the trophy awarded him for having "The Most Miserable Beard" in the Old Miners' Day celebration at Big Bear Lake.

This is Scotty's third win in the Big Bear frontier celebrations. In 1961 and again in 1969 he took trophies for having the "Most Rustic Old Miner's Beard." A "rustic" beard, he explained, is one that has never been trimmed, but has been permitted to "grow wild."

Mr. Scott is a cabinet maker at the Torrance facility of the Aircraft Division and has been with Northrop about 15 years.



JOE SHAFFER AND ONE OF HIS FRIENDS

DESIGN SPECIAL TRICYCLE

Northrop Men Aid Handicapped Girl

Anna Johnson, a young cerebral palsy victim residing in Cypress, is now able to play outdoors with her friends, thanks to a specially modified tricycle designed and built by Jack Meyers and Bill Brenton of the Electronics Division.

The vehicle is a pedal driven trike, which is similar to a three-wheel bicycle. This was chosen because Anna's limited muscular control would not lend itself to a tricycle where pedals are a part of the front turning wheel.

The trike is equipped with a seat with a fairly high back and safety belt. Restraints have been placed on the pedals to help the youngster keep her feet on them. The handlebars are raised along with the seat to make them more suitable for her size.

"The challenge of learning to ride the trike was Anna's difficulty in gripping the handlebars," Mr. Meyers said. "Once this was accomplished, she had little trouble mastering the operation of the machine and finds it easy to operate now."

Family Friend

Mr. Meyers, who is now assigned to Electronics Division's Northrop Dakota, Inc. facility in New Town, N.D., first became interested in the little girl through his daughter, who is a friend of Anna's older sister.

He learned that Anna's parents discovered she was a victim of cerebral palsy when she was about six months old. At that age she was unable to sit up or hold her head up. Since that time, Anna has learned how to do many simple tasks, and is presently learning to walk in a normal manner.

Besides the personal satisfaction Messrs. Meyers and Brenton have received from seeing little Anna able to be outdoors with other children, there is now the possibility that other similarly handicapped children can benefit from their specially designed tricycle.

OUTDOOR FUN
Anna Johnson on her specially modified tricycle.

Joe Shaffer Is Operating a 'Rest Home' For His Wild Friends From The Desert

Joe Shaffer's zoo is not a real menagerie, he says. It is a rest camp where his friends from the desert can come and spend a few days before they are returned to their natural habitat.

Mr. Shaffer, foreman in Electro-Optical Assembly at the Electro-Mechanical Division, brings back desert creatures to his home, keeps them a few weeks and then takes them back to the desert.

He began his round-robin zoo some years ago when he brought back a snake and a lizard so he could study and identify them.

Knowing that some species do not live long in captivity, he was careful to take them back in plenty of time.

From that beginning, he has continued his round-robin zoo and always has a number of kangaroo rats, rabbits, snakes and birds on hand.

Originally he detested the desert, considering it hot, dry and miles and miles of nothing. He only went there in order to find a place to shoot. Then the desert "grew" on him and at the same time he became interested in desert creatures.

He began trapping them so he could study them more closely. "I won't kill one," he said. "The only animal I ever shot was a poor coyote and I've felt bad about it ever since."

Capturing desert animals is not difficult, he reports. "There are areas of the desert so tame that lizards will crawl on your arm, rabbits will come right up and look at you, and birds will land on your shirt and peck at the buttons."

Patience Does It

There are some tricks to catching some of the animals. With lizards Mr. Shaffer just puts down his hands and waits. After a while, when he doesn't harm them, they crawl right up his arm.

King snakes can be tamed by letting them coil about your arm. "As soon as they begin to feel the heat of your body, they tame down," he said. "Originally I was very much afraid of snakes. Then one day I decided that was a dumb thing and I went out of my way to become acquainted with them. Once you get to know snakes, they aren't bad creatures at all.

"In fact, that is true of all desert varmints. They want to be friends if you'll just let them."

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

MGA 1600, 1957, needs body & trans. work, $150. 213-326-7528.

Triumph, 1968 fastback, GT-6, 4-spd., $1,475. 213-378-8892.

Datsun 1600, 1968, h/top convt., radio, new tires & clutch, $1,350. 213-378-1839.

Dune Buggy, kit blt., new top & doors, $1,000. 213-675-4892.

Fiat, 1968 850 cpe., 4-spd., radio, 33,000 mi., $1,025. 714-778-5828.

Triumph, 1970 M/C Tiger 650, 3,300 mi., $1,050. 213-329-0086.

Chevrolet, 1965 Chev. Impala S.S., p/s, r/h, $895. 213-831-3045.

Toyota, 1969 Corona, auto. trans., fact. air, $1,550. 714-897-2007.

Mustang, 1969 Grande, 2-dr. h/top, r/h, $1,500. 213-371-6662.

Opel, 1969 GT-1900, r/h, p/b, radial tires, $2,150. 213-371-7197.

Volvo P-1800, 1962 sport coupe, AM/FM, $850. 213-329-1705.

Mustang, 1965, stick shift, $850. 213-423-5690.

Ford, 1964 Econoline, 6 cyl., lge. eng., $750. 213-375-6458.

Truck, 1956 Chev. & camper, $275. 213-378-3219.

Volkswagen, 1964, radio, $675. 213-675-2331.

Datsun, 1969 sedan, 17,000 mi., $1,350. 213-372-5367.

Volkswagen, 1968, r/h, new whitewall tires, $1,100. 213-644-5463.

Buick, 1969 Riviera, 48,000 miles, full power, a/c, $2,750. Box 1601.

Volkswagen bus-camper, 1965, Porsche powered, wood paneling, $1,295. 213-821-4180.

Edsel, 1959 Range, $750. 213-327-6918.

Chevelle, 1967 SS 396, 4-spd., $1,200. 213-498-3013.

Chevrolet, 1969 Caprice, h/top cpe., many extras, $2,450. 213-675-1842.

Mustang, 1965, V-8, auto. trans., a/c, p/s, radio, 43,000 mi., $950. 213-378-2127.

El Camino, 1964, 283 cu. in., 4-spd. trans., 4 bbl. Holly carb., recent o/haul, $775. 805-495-5368.

Volkswagen, 1959 dune buggy, $550. 213-830-4832.

Volkswagen, 1970 squareback, auto., $2,190. 714-847-5439.

Miscellaneous For Sale

Mattress, king size, $40. 213-823-5526.

Rug, 12'x20' nylon hi-lo, avocado, used 1 yr., $80. 213-569-6543.

Acreage, 5 acres, on Hwy. 18, Apple Valley, grant deed, $500 dn., 6.5% int., $50 mo., $5,500. 213-327-4356.

Stereo, Motorola, detach. spkrs., auto., long play or 45 records, $50. 213-676-3365.

Trailer Hitch, for 1963 Buick Skylark or Special, $4.50. 213-675-2005.

Acreage, 5 acres, adjacent to new fwy., Antelope Valley, 10% dn., $18,000. 213-424-7351.

Air Cooler, Thermador evaporative-type mod. TCF-85P, $15. 213-679-2864.

Chord Organ, Estey elec., 24 chords, 3 octaves, $60. 213-675-6020.

Tent Trailer, Sears, 8'x13' zip on room w/ floor, $350. 213-371-8879.

Sewing Machine, Singer uphol-type, walking foot & table, $150. 213-675-2329.

Air Conditioner, window-type, 12,000 BTU/hr., $70. 714-524-3591.

Motorcycle, 1968 CL 350 Honda Scrambler, $495. 213-329-2842.

Mobile Home, 1970 Biltmore, 12' x 52' expanded liv. rm., $500 dn., & take over bal., $6,000. Box 1602.

Pups, min. Dachshund, AKC, dk. reddish brown, $60 ea. 213-883-4471.

Jukebox, Wurlitzer, stereo & records, $350. 213-371-3079.

Kitten, Burmese, male, champagne color, w/ papers, $75. 213-377-9414.

Living Room Set, Chippendale, $500. 714-531-4958.

Range, O'Keefe & Merritt, gas, 4-burner, coppertone, $75. 213-532-1408.

Surfboard, Soul 7' 6" x 22½", $35. 213-375-0785.

Surfboard, 9', $15. 213-377-5897.

Miscellaneous For Sale

Movie Camera, Bolex, C8 w/master splicer, & light finder, $40. 213-674-8610.

Drum Set, 4-pc. w/hi hat, $85. 714-897-9334.

Home, Palos Verdes, 4-bdrm., 3 baths, office, study & hobby rm., 3,100 sq. ft., 5 min. to fwy., $82,500. 213-831-0453.

Stove, 4-burner, 30", gas, 1 yr. old, $75. 714-531-3368.

TV, 19" b&w portable, Packard Bell w/stand, access., $42.50. 213-376-4831.

Rear End, Austin-Healey posi-traction, 3.90 ratio, $140. 714-968-4573.

Carbine, customized military 8mm Mannlicher Mauser, 20 rds. new hunting ammo, 100 rd. empty brass, $75. 213-327-4585.

Chair, Morris, circa 1895, $145. 213-329-6039.

Chain, ⅜", 65' in 10' lengths, $15. 213-325-3675.

House, 4-bdrm., 2 baths, lge. fam. & living rms., f/place, cpt., bltins, dble. car gar., fenced yd., $43,900. 213-833-1970.

Motorcycle, 1971 Yamaha Mini Enduro, $250. 213-532-7175.

Boat, 21' Trojan Lapstrake, 170 h.p. i./o. 4-wheel tandem trailer, many extras, $1,500. 213-379-1031.

Air Conditioner, for 1967 Volkswagen, $75. 714-528-0379.

Motorcycle, 1967 Yamaha, 100 cc Trailmaster, equipped for street or dirt, $225. 213-372-6916.

Swim Pool, 12'x3' Doughboy, all access., cover, $30. 213-596-9748.

Tires, 2 Goodyear polyglas, size L-78-15, $20. 213-823-8694.

Carpeting, red, pebbletex, 8 x 10, $25. 213-343-7880.

Acreage, 5 acres, California City, $8,950. 213-830-5777.

Dresser, 6-drwr., walnut finish, laminated, $15. 213-329-6748.

Dog Basket, med., $2. 714-830-3048.

TV, Zenith 19", portable w/stand, $35. 213-831-6882.

Washer, w/dryer, elec., $100. 213-370-1314.

Motorcycle, 1970 Honda Trail 90, $300. 213-378-4422.

Horse, Arabian mare, jumper, 6 yrs. old, 14 hands, $500. 714-549-0436.

Motorcycle, 1965 Honda 160, knobby tires, $150. 213-329-3593.

Tape Deck, Muntz 4 & 8-track, stereo, converter, 2 spkrs., over 25 tapes, $75. 213-291-5280.

Pups, AKC tiny toy poodle, apricot, 7 wks. old, $125. 213-596-3618.

Surfboard, Rick, 7' 8", $50. 213-679-6610.

Cots, Sears, 2 sets, use as single or bunk beds, $15 pr. 213-323-7171.

Radiotelephone, marine VHF, 35 w., $275. 213-322-6655.

Rifle, .222 cal. Rem. w/scope, 50 rnds. ammo, extra brass, $100. 714-828-7873.

Dining Table, antique, round, oak, 3 leaves, $145. 213-375-9340.

Motorcycle, 1969 Hondo 90 Motosport cam, big bore, street access., many extras, $250. 213-323-6456.

Slide Projector, Argus 500 Electromatic, 35mm, 100 Airequipt mags., 3 carrying cases, $50. 213-541-2710.

Wiglet, 100% human hair cascade, light ash brown, $7. 213-865-2724.

Pups, AKC miniature Dachshund, 9 wks. old, $75. 805-483-0594.

Motorcycle, 1970 Suzuki 90, 1,300 mi., $300. 213-675-7982.

Tires, 4 Union 4 Star White, s/wall, 6.78 x 14, 4-ply belted, used 1,000 mi., $140. 213-295-9997.

Exacta, VX 1000 35mm sys., 5 lenses, D.T. bellows, 2 S.M. lenses, pro case, strobe, extras, $350. 213-835-3869.

Dining Table & 6 chairs, French provincial, $150. 213-644-7981.

Vacuum Cleaner, Universal, canister, $10. 213-534-0253.

Radio Control Set, model airplane-type, Hallco 103, 3 channels, $35. 213-377-6435.

Boat, 1970 Evinrude 17' all-purpose, 155 h.p. Buick V-6, OMC dr., trailer, bait tank, $3,595. 213-325-5859.

Luggage Carrier, enc. w/clamps, 4' x 6', $20. 213-675-1616.

Land Camera, Polaroid, swinger mod. 20, $5. 213-374-8289.

Records, 25, 33's, 45's, 78's, $8.50. 213-378-1863.

Houses, 2, 2-bdrm. ea., on 1 lot, close to Northrop, completely fenced, $140 monthly pymts. if existing 6% loan is assumed, V.A. or FHA, $33,000. 213-675-6016.

Range, elec., Westinghouse Continental, eye-level oven w/glass door, $100. 213-675-0788.

Stroller, & crib, $18. 213-679-1879.

Surfboard, 9' 9" Hansen, $25. 805-495-3153.

Laredo AFB Pilot Training Wing Goes Home With Three Top Awards

The 3640th Pilot Training Wing of Laredo AFB, Tex., has won the USAF Outstanding Unit Award, the ATC Flying Hour Honor trophy and an Award of Honor from the National Safety Council.

Presentation of the honors came at a recent Commanders' Conference held by Air Training Command.

The unit award recognized "exceptionally meritorious service" in support of the USAF training mission. The 3640th graduated 900 pilots, flew 221,-210 hours and logged 444,879 landings during the two-year award period.

The Flying Hour Honor was for completing 100,000 flying hours without a major or minor accident. The NSC award recognized a 43.8 per cent reduction in composite ground accident rates during the calendar year.

The 3640th flies Northrop-built T-38 trainers for training student pilots.

POLICE TOUR

As a courtesy to Police Commissioner Marguerite Justice, the Public Relations Department of the Los Angeles Police Department conducted a special four-hour tour for Northrop Corporation employees last Saturday. Tours are normally conducted during the week only.

Mrs. Justice is the wife of William H. Justice, Jr., Northrop Data Processing.

Northrop visitors saw the full scope of police activities in action, including dispatching, fingerprinting, plus a look at a detention cell.

Miscellaneous For Sale

Shotgun, 16 ga. pump, adjust. choke, J. C. Higgins, case, $40. 213-670-0852.

Hemi, 392 cu. in., complete w/3-spd. std. trans., $150. 213-641-7080.

Mobile Home, 10x55 w/7x22 expando, 1965 Skyline, carport, skirts, awning, tool shed, air coolers, in adult park, Escondido, $3,800. 213-378-0501.

Kitchen Set, 5 pcs., white mica, $17. 213-674-0852.

End Tables, solid maple, $40 ea. 213-675-3996.

Cement Mixer, Sears elec., wheelbarrow-type, 1⅓ cu. ft. mix cap., $80. 213-377-5853.

Gyrocopter Glider, ready for eng., 2 5-gal. tanks, blades, whl. covers, $800. 805-947-1026.

Condominium, 3-bdrm., 2½ baths, rec. room, 2 pools, Rolling Hills area, $34,500. 213-547-2716.

Mobile Home, 10' x 55', expanded liv. rm., 13' x 18', awnings, cooler, 5' x 7' redwood cab. storage, in adult park, $5,500. 213-320-2512.

Bicycle, girl's 20", $10. 213-645-7972.

Motorcycle, 1965 Yamaha, 80cc, full dirt setup, GYT kit, extra parts, $200. 213-425-7243.

Fall, frosted, 100% human hair, $25. 213-377-2631.

Wanted to Buy

Freezer, upright, thin-wall construction, in good working cond., reasonable. 714-546-6714.

Hardtop for 1957 Triumph TR-3. 714-635-7975.

Drafting Machine & table. 714-968-1539.

Free (To Be Given Away)

Kittens. 213-545-6262.

Pups, Toy Terrier/Pug, born July 26. 213-375-8460.

Rentals Offered

House, near West High, Torrance, 4-bdrm., patio, dble. gar., $340 mo. 213-542-6808.

Condominium, 2-bdrm., Palm Springs vicinity, furn., pool, $60 w/end, $100 wk., 213-327-8994, 213-324-5709.

Cottage, Ocean Bch., San Diego, near Mission Bay, $75 wk. 714-826-2007.

Studio Apt., 2-bdrm., 2½ baths, sub. gar., adult bldg., Inglewood, $225. 213-670-6084.

Garage, at 120th & York, Hawthorne, $10 mo. 213-672-1716.

NORTHROP NEWS

Vol. 29 **No. 16**

Published monthly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

Rentals Offered

House, Bass Lake, $150 wk., $45 w/end. 213-374-3702.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

House, 3-bdrm., 2 baths, Garden Grove area, $245 mo. 714-968-5343.

Apt, (house unit), lge., 3-bdrm., 2 baths, cpts., dps., closed gar., near Northrop, children ok, $215. 213-675-7938.

Cabin, Moonridge area, Big Bear Lake, sleeps 8, $25 night, $125 wk. 213-375-0493.

House, 2-bdrm., den, pool, 2 baths, sep. service porch, used-brick corner f/place, bltins, cpts., dps., unfurn., rent w/option to buy, in Whittier, $250 mo. 213-943-8187.

Cabin, Lake Arrowhead, 200 feet from lake, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

House, Rolling Hills, 3-bdrm., 2 baths, lease, cpts., dps., bltins, $350 mo. 213-674-8534.

Apt, deluxe, P.V. Dr., Lomita, 4-bdrm., 2½ baths, pool, outdr. maintenance provided, cpts., dps., patio, $315 mo. 213-325-5609.

House, Hollypark, 3-bdrm., family room, 2 baths, $190 mo. 213-349-6854.

Child Care

Child Care offered, daily, 2-yr. old or older, begin Oct. 4. 213-644-9018.

Babysitting, my home, days only, fence yd., 2 blocks from main plant. 213-644-6653.

Personals

Our sincere thanks to all for the kindness & thoughtfulness at the recent passing of my wife, Agnes. TED GARVEY & FAMILY.

I wish to express my thanks to all my friends & co-workers for the retirement party & gifts. VIC BRENEMAN.

I wish to express my thanks to all my Northrop friends & Orgn. 5503 for the retirement send off. ELMER LOHRY.

My sincere thanks to my friends for the party & gifts on the occasion of my retirement. HENRY P. GRIGGS.

Ride wanted, 8 a.m., morning only, from vicinity of Ball Rd. & Walnut, Anaheim, Electro-Mech. ext. 220, 714-774-9286.

Thanks to my Northrop friends for the lovely cards & flowers. JUNE CURTRIGHT.

I wish to thank all my friends for their cards & well wishes during my illness. AL LUCAS.

Pilot Wanted, instrument rated, to join flying group commuting to work between Orange County & Hawthorne airports. 714-544-5297.

Two Teams Earn Titles

Two of Electronics Division's entries in the NRC Softball League walked off with championships this season in their respective divisions of competition.

The Microsticks, managed by Al Bagdon, posted a perfect 10-0 record in winning the 14-inch division. The Rogues, led by Lou Colombano, topped the 12-inch division with an 11-1 record.

Behind the solid pitching of Carl Newman and the power hitting of Mike Leitzel, the Microsticks won nearly all of their games by a wide margin.

"We really had a great bunch of guys on this year's team," said Mr. Bagdon. "Everybody played to the best of his ability and always demonstrated superior sportsmanship."

Members of the Microsticks include Jim Nelson, Kerm Heid, Chuck Chamberlain, Harry Redgrift, Hermon Vaught, Darrell Luebs, Richard Bell, Vahan Housepain, Ben Anderson and Frank Compoas.

The Rogues maintained a perfect record until the last game of the season, before finally dropping a close 5-4 decision to the Aircraft Division's F-Troop.

The Rogues were led throughout the season by the pitching of Gary Wycoff, the hitting of Dick Larson, and the fielding of shortstop Eddie Ross. Other players include Jack Gonedallis, Pete Katzaroff, John Lavender, Jim McClannan, Kas Miya, Sam Murikami, Ed Ross, Mike Sandaval, Phil Snow, Jerry Stephens and Brice Bates.

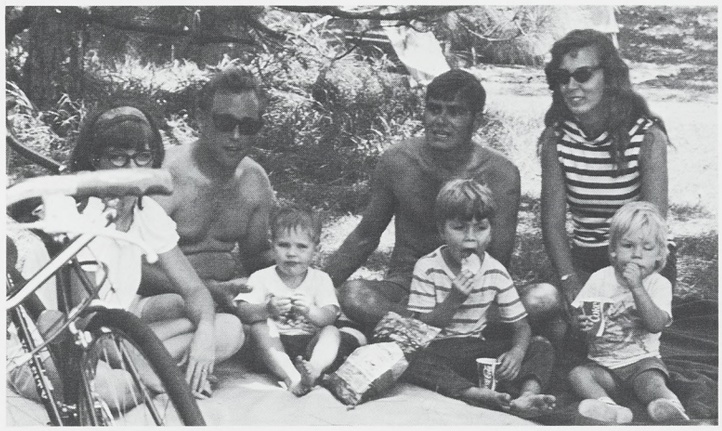
JA Company Needs Help

Employees interested in becoming advisors to the Electronics Division-counseled Junior Achievement company for the coming school year are invited to contact Harry Clark, Industrial Relations, ext. 425.

The JA program is designed to teach the principles of free enterprise by helping high school students to set up, manufacture and sell a product of their own choosing. The company operates like a corporation and finances operations through the sale of stock.

Advisors, who explain to students the factors involved in solving business problems, should have a background in one of the following three areas: management, sales or production.

THE FAMILIES AND GUESTS of Bill Banks, above, and Ron Adams, below, take time out from the day's festivities to eat a snack.



SERVING FREE refreshments are, from left, Dick Williams, Jeanne Andrecht, Frank McGinley and Dennis Mahaney.

Highlights Of NRC Family Picnic

SHERRIE WRIGHT and Donna Hansen, granddaughters of Hal Bigelow, teamed up to win the water balloon throwing contest.

PATTY NOAH, daughter of Fred Noah, didn't quite win the water balloon throwing contest, but she did get quite a few laughs.

WHEELBARROW RACES PROVED TO BE A BARREL OF FUN FOR YOUNGSTERS

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 29, No. 17 | October 1971

C-5 Navigation System Praised In News Article

The inertial doppler navigation equipment for the U.S. Air Force C-5 Galaxy, built by Electronics Division, was praised recently in an article carried by the Air Force Times.

The article said that in keeping with the advanced airlift capabilities of the C-5, the Galaxy "utilizes navigation systems found on no other aircraft."

The article quotes Capt. Manfred Liebner, expressing the enthusiasm of a navigator over the C-5 navigation system, as saying: "I've flown from Dover AFB, Del., to Elmendorf AFB, Alaska, a distance of 3,400 nautical miles, and the computer was off only about 1,000 feet. That's without updating the original information I fed into the computer (upon departure from Dover AFB)."

Military Airlift Command now has 26 C-5's in worldwide service. The first became operational in July 1970. In the 12 months since, the growing fleet logged 6,280 flying hours and delivered 21,400 tons of cargo.

BLOODMOBILE

Electronics and Aircraft Division volunteers contributed 176 pints Sept. 10 at a quarterly Northrop Blood Bank operation.

The next bloodmobile visit to Northrop will be Dec. 10.

RECEIVING THEIR 30-YEAR service pins this month were Don Hannum, third from left, and Kirk Hunt, second from right. The pins were presented by General Manager Ross F. Miller, right. Looking on were Dr. William Parker, left, and Jim Lynch.

SERVICE PINS

Two Reach 25-Year Mark

Two 25-year veterans—Lloyd Balsam and Warren Schreyer—head the list of Electronics Division employees qualifying this period for award of Northrop service pins.

Mr. Balsam is deputy director of Business Development for the Navigation Department. Mr. Schreyer is an engineering specialist in the Systems Evaluation group, Navigation Department.

Other employees receiving Northrop service emblems in September and October were:

PALOS VERDES

Twenty years: Elton Koenig, Ruth Fernandez, Robert Umekubo, Stanley Hawkins and John Collins.

Fifteen years: Hal Janssen and Reginald Morales.

Ten years: William Mahoney and J.S. Fassero.

Five years: Evelyn Brekke, Leonard Minowitz, John Rufino, William Coster, Michael Murphy and Gary Myerson.

HAWTHORNE

Twenty years: Eloise Howell, Jack Morgan, Jackie Tripp, Anthony Piccirello, John Crowley, Don Caughlin, Jim Mihos, Rosella Jordan, Henry Arnold, Jr. and Duane Kock.

Fifteen years: Anita Smith, Pete Cuomo, Eugene Conley, Toru Aihara, Opie Hawley, James Hardie, Myles Harris and Francis Craig.

Ten years: William Morrison, Barbara Enright, Richetta Bertuco, Jean Tobias, Lucille Riley, Marguerite Condo, Lois Jellsett and Fred Debose.

Five years: Robert Dempsay, Joan Bradley, Ronald Beye, Bruce Miller, Marvin Jasper, Denny McCormick, Charles Hulen, Charles Jones, Jr., Roger Brown, Steve Kaneshiro and Agnes Nash.

OWEN GRIFFITH NAMED TO EXECUTIVE COMMITTEE OF DATA PROCESSING BOARD

Dr. Owen Griffith, research engineer in JIFDATS, Palos Verdes, has been selected as a member of the executive committee of the California Intergovernmental Board on Electronic Data Processing at a meeting in Sacramento.

Dr. Griffith was first appointed to the statewide board by Governor Reagan in May 1970.

The Intergovernmental Board is working on several major projects, according to Dr. Griffith, including a proposal to develop a master plan for criminal justice information systems for the state, and a program to establish guidelines for the development of all intergovernmental information systems.

Dr. Griffith has been a member of the Torrance Board of Education since 1967.

FASTER SERVICE

Employees in the Hawthorne facility will receive faster service at the food services operation by adhering to the following schedule:

Break periods of 9:15 to 9:25 a.m., and 2:15 to 2:25 p.m., are reserved for Production personnel only. If possible, other employees should refrain from visiting the food services area at that time to avoid congestion and long waiting lines.

Drone Team To Make Bid

Electronics Division, which has experience in integrating the digital avionics systems for both the SR-71 and C-5A aircraft programs, will lead a team bidding on the Low Altitude Drone Avionics Program.

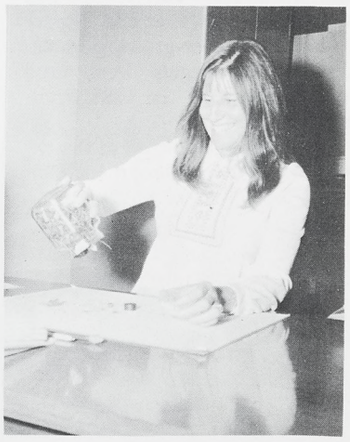
Other members of the team will include the Univac Defense Systems Division of the Sperry Rand Corporation, Salt Lake City; Northrop's Aircraft Division and Northrop's Ventura Division.

Univac, which has applied its Microwave Command Guidance System to a number of drone programs, will provide drone command and control technology. The Aircraft Division will be responsible for aerodynamics; and the Ventura Division, which has produced over 60,000 drone aircraft, will supply drone technology.

The Drone Program office in the Electronics Division is being directed by George Fritzel.

KEGLERS NEEDED

Employees interested in signing up as "substitutes" for regular keglers in the Electronics Division NRC Bowling League can do so by contacting Otha "Stubby" Stubblefield on ext. 663, Hawthorne.



PERSONNEL ACTIVITIES CLERK Gail Wise selects winners in the Electronics Division's recent "Guess the number of Beans" contest. Winners were Don Beatty, Palos Verdes, and Lisa Smyers, Hawthorne. Both received two free tickets to the Northrop Night at Magic Mountain.

IT'S ALMOST TIME to replace that hour we lost in April when Daylight Saving Time started, Sharon Byerly, Aircraft Division, reminds us. The time changes back to standard time at two a.m. on the last Sunday in October. Just run your clock back one hour and you'll be on time for work the next Monday.

Northrop Dakota Holds Anniversary Open House

More than 1,200 persons attended an Open House earlier this month at Northrop Dakota, Inc., to celebrate the plant's first year of operation in New Town, N.D.

The Open House was held in conjunction with several other activities in the New Town area, on a day which honored Senator Milton R. Young, R-N.D., for the numerous contributions he has made to the community.

Northrop Dakota, Inc., produces parts and items for use in Northrop electronics equipment and aircraft. The plant employs approximately 63 people, the majority of whom are Indians from the nearby Fort Berthold Indian Reservation.

Visitors to the plant viewed a number of exhibits, including models of the Northrop F-5E and the U.S. Marine Corps AV8A vertical takeoff and short landing aircraft. Also on display were an operational voice warning system, the inertial measurement unit for the C-5 navigation system, a high-speed, general purpose digital computer and a mock-up of the highly successful OV5-9 spacecraft.

In addition, local residents were shown a 15-minute color slide presentation on the worldwide capabilities of Northrop.

MQM-74A FIRED FROM DESTROYER

The MQM-74A/Chukar went through its paces from a new launch pad recently when it was launched from a U.S. Navy dash-configured destroyer escort out of San Diego.

The target has been launched from an aircraft carrier but this latest firing was another display of the bird's ever-growing versatility. Three targets were fired from the deck of the USS Francis Hammond.

Representing Ventura at the exercise were Jerry Koopman, Don Peck, Ken Grass, Tom Smalley.

GETTING TO KNOW NORTHROP DAKOTA, INC.
Visitors viewing exhibits at the Open House celebration.

First F-5E Assemblies Are Moving on Schedule

Moving precisely on schedules established almost a year ago, major subassemblies for the new Northrop F-5E fighter are now appearing in increasing numbers along Aircraft Division assembly lines.

Initial subassemblies — sections of the inlet ducts and parts of the center and forward fuselage — were loaded into assembly jigs Oct. 8 as originally scheduled in late 1970, shortly after Northrop contracted to develop and produce the F-5E for the USAF.

The first subassemblies, plus others that have joined them subsequently, are destined for use in initial flight test aircraft of the F-5E fleet.

Following factory completion at the Hawthorne plant, flight test aircraft will be trucked directly to Edwards AFB for tests. The first aircraft is now slated for flight in early summer of 1972.

Components for use in both static and fatigue test aircraft are also flowing on assembly lines, along with flight test aircraft parts.

Darrell McNeal, manager of F-5/T-38 Assembly Operations, called the on-schedule loading of initial parts a "significant achievement across the board."

"Every department, from Engineering to Tooling, Materiel to Machine Shops, Planning to Quality Control, has contributed to this status," he said. "Many individuals are due a 'well done' for their efforts."

FIRST F-5E SUBASSEMBLY IN JIGS
Guillermo Navarro, left, discusses work with Earl Bentley.

PPD Handles Grid Ticket Distribution

Electronics Division's Precision Products Department, Norwood, Mass., was recently awarded a contract for distribution control of all season tickets to the New England Patriots' new 61,000-seat football stadium in Foxboro.

The new system, which imprints tickets for all of the Patriots' home games on a single sheet of paper, was devised by PPD's Data Processing group.

"This is one of several new commercial accounts being handled by our people," said Art Dubnow, chief of Data Processing. He added that the department is currently investigating similar programs with other companies.

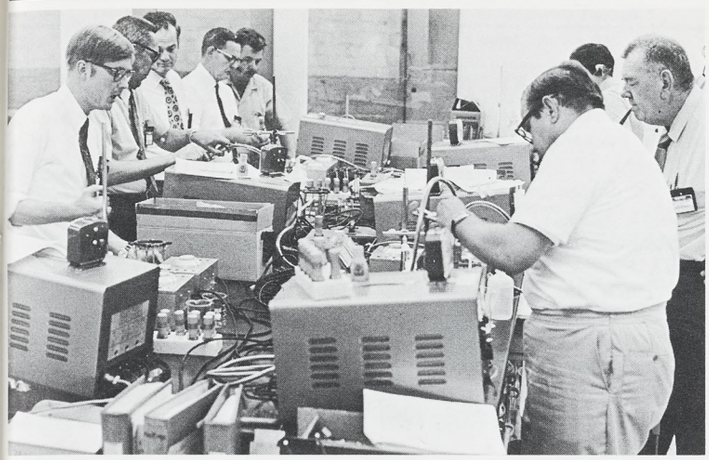
ALUMNI GROUP SELECTS GIL NUNN

A Ventura Division photographer, Gil Nunn, has been elected second vice-president on the executive board of directors of the newly-formed Brooks Institute of Photography Alumni Assn.

Mr. Nunn was named to the board while attending the recent statewide convention of the Professional Photographers of California in Fresno.

Two of Mr. Nunn's photos were selected by judges to be among the limited number displayed for the 1,000 visitors to see at the convention.

The photos, both in color, were of a Northrop MQM-74A target being launched in an exercise at Twenty-Nine Palms and another entitled "Help." The latter shows a yellow flower alone in a profusion of pink and fuchsia flowers.



NORTHROP AIRCRAFT'S Quality Engineering Lab has provided the classroom facilities and hosted a Boeing Company school for plating vendors. The class included instruction in the use of a new machine to check for hydrogen embrittlement in plating solutions. Shown using the test equipment in class are, left, Ameil Forshee, TBC; Henry Meers, Bendix; Art Scherman, TBC; John Kemper, and Chester Bowling, Super-Chromex. At right are Bill Snyder, Embee; Bob Litchliter, Menasco.

Northrop Support Personnel Take Part In Important NASA Scientific Flights

Northrop support personnel participated in two recent important scientific flights of the NASA Convair 990 flying laboratory, at Ames Research Center, Moffett Field, Calif.

The most recent flight, departing from Wallops Island, Virginia, on Sept. 7, participated in the Barium Ion Cloud launch. This experiment in effect placed a man-made star-appearing image in the sky to be observed from points in South America and the west coast of the United States. The star effect was fired at 20,000 miles above the earth by a rocket and was viewed by scientists in the CV-990 at an earth point approximately 300 miles east of the Bahamas Islands.

The other flight, made two months earlier, carried scientists on the Hawaii Mars Observation flight. This flight enabled scientists to view the planet from a position above the greatest mass of the earth's atmosphere. Data gathered is expected to aid the projected NASA unmanned rocket exploration of the Red Planet.

Northrop support personnel participating in the CV-990 program are flight support members stationed at Ames Research Center, Moffett Field, Calif., according to Frank Schroeder, resident manager of Northrop activities at Ames.

They are: R. W. Adkins, pilot; E. C. Mitz, flight engineer; R. J. Watson, crew chief; and flight support technicians D. R. Burris, G. H. Harner, C. P. Kahl, C. A. Robinson, C. T. Simpson, B. C. Tatum and P. V. Wolfe.

They Also Serve

Other flight support members assisting in NASA aircraft maintenance, but who were not on the Mars observation flight are K. W. Givens, B. B. Gray, K. D. Osborne and F. W. Stillman.

In addition to those associated with the Convair 990, Northrop Support, Inc., has approximately 36 other technicians and engineers at Ames Research Center who support flight simulator operations, Bio-Medical Research, Long Path Gas Cell activities, wind tunnel equipment and Zero-Zero landing systems.

GAGE SNOOK, Aircraft Division, has been named national chairman of the Northrop Institute of Technology Alumni Association's annual Giving Campaign.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Two Officers Begin EWI Training With Northrop

Captains Donald W. Bishop and John A. Justice, USAF production/procurement officers, are in the early phase of a 43-week tour of duty with Northrop Corporation as participants in the Education With Industry (EWI) Program.

This program, a joint venture of the Air Force Institute of Technology and leading government contractors, seeks to train young career officers in a technological - management environment affording them an opportunity to interpret events and make better decisions.

A basic program goal is to develop an understanding of the complete cycle involved in system concepts, design, development, testing and production.

During their stay at Northrop the officers will rotate through major departments and functions throughout the corporation, actually working on management-level problems. They will visit each major operating division, plus subsidiaries and specialized departments. A part of their time will be spent at the Corporate office.

Captain Bishop, a native of Alabama and graduate of Auburn University, entered the USAF in 1965. He served one year as test director of airborne electronics at Eglin AFB and for two years was deputy director of a remote satellite control station on Guam. He also served as maintenance officer and commander of the 1st Geodetic Communications Electronics Squadron.

The holder of B.S. and M.B.A. degrees from the University of Montana, respectively, Tennessee-born Captain Justice entered the USAF in 1964.

He was a senior Minuteman missile combat crew commander at Malmstrom AFB, Montana, for three and one-half years. He served as fuels officer for the 8th Tactical Fighter Wing in Thailand for one year and was base fuels officer for the Air Defense Command at Kingsley Field, Ore.

NAS GETS PACT FOR MATERIALS

Northrop Architectural Systems has been selected to supply architectural materials for another important Southland building.

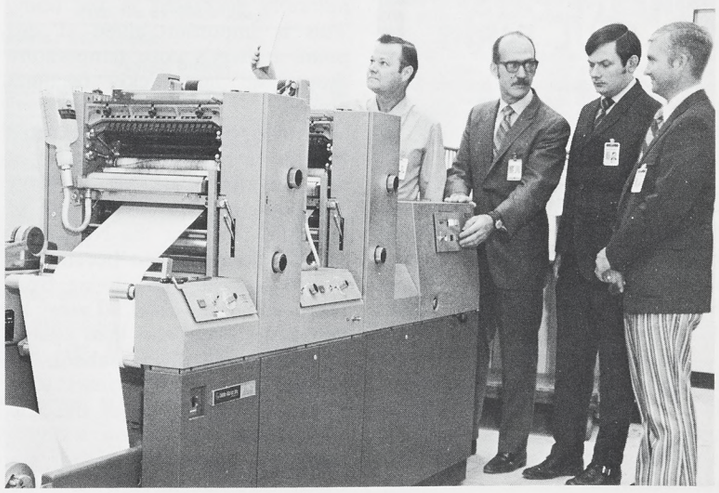
NAS has received a $3 million contract for the curtainwall for the 62-floor United California Bank building in Los Angeles which will be the tallest building west of Chicago.

Recently, NAS completed the curtainwall installation on the Balboa Insurance building in Newport Beach and is completing work on the Ahmanson Center, Los Angeles, and the Lawrence Welk building, Santa Monica.

CLASS IS OPEN

Northrop Toastmasters will launch a "Speechcraft" course October 28 and invite all employees to take part.

Session will be held from 6:30 to 8:30 p.m. each Thursday for eight weeks at the Turner Century Motor Hotel on Century Blvd. Contact Charles Ferraro, ext. 2927, or John Williams, ext. 2471, at the Aircraft Division, for information.



EWI TRAINEES STUDY GRAPHICS OPERATIONS
From left, Tommy Thomas, Don Baker, Capt. John Justice, Capt. Donald Bishop.

Erik Tandberg

A BUSY NORWEGIAN

Major Tandberg—Man of Many Talents

Major Erik Tandberg is a man of many talents—military officer, television commentator, lecturer, space exploration authority, to name a few.

Major Tandberg is currently F-5 project officer for the Royal Norwegian Air Force's (RNoAF) Air Materiel Command.

During a business visit to the Aircraft Division, Major Tandberg talked with Northrop News about his unusual career.

"I enlisted in the RNoAF in 1952, answering an advertisement for men to come to the United States for specialized mechanical training. I completed that training at Amarillo and Chanute AFB's," he said. "Subsequently, I returned to the U.S. to earn a bachelor's degree at the University of Santa Clara and a master's degree at Stanford. And for one year I studied rocket propulsion at Princeton as a NASA Fellow."

In 1960, the state-owned Norwegian Broadcasting Company (NBC) was looking for a suitable television commentator to discuss the launch and orbit of the world's initial weather satellite.

Major Tandberg went "on camera" and landed the job.

Steady Performer

Since that time he has served as a commentator on all space exploration activities for the NBC, a task that may take anytime from a few minutes to more than 15 hours, as was the case with a recent Apollo mission.

Major Tandberg is one-half of a special team covering such events. His associate, a journalist, handles "color" while the major concentrates on the technical side.

Over the past decade, Major Tandberg has become one of Norway's top authorities on space exploration and his face is known to people throughout his homeland.

"This is both good and bad," he says. "It is always nice to be recognized, but it can also play havoc with my family's privacy."

Walt Byers worked for an extended period as Northrop representative in Norway and is high in his praise of Major Tandberg's poise before the cameras.

"Erik is a natural for this. He is relaxed. He has a knack for taking highly technical topics and breaking them down so everyone can understand what is happening," Mr. Byers said. "He uses models and other props to a maximum advantage."

In its normal telecast of Apollo missions, NBC transmits actual audio and video signals, originating in the United States. These signals are received from a communications satellite. Thus, viewers hear what is happening in English. Major Tandberg and his associate break in for explanations in their native tongue from time to time to maintain continuity.

Shortly after he began working in TV, Major Tandberg found he was in demand as a lecturer and speaker on space topics. He now handles 60 or more speaking engagements each year throughout Norway.

Northrop Men in World Tourney

The Hawthorne Hustlers, a fast-pitch softball team that originated in NRC and continues to rely heavily upon Northrop talent, have competed in their third International Softball Conference World Tournament at Tulsa.

Deadlocked with Santee at the end of regulation play in the Western Softball Congress, the Hustlers took a best-of-three game series to earn the right to compete in Tulsa.

The Hustlers downed Wellsville, Utah, 7-0, and Mesa, Ariz., 9-2, before dropping a 4-3 game to Englewood, Colo. A second loss, 5-0, in the hands of El Paso eliminated the team.

Last year the Hustlers dropped their opening games, again to El Paso, then won eight straight before bowing to Phoenix in the championship round.

Pitcher Greg Halberg, second baseman Bill Greene and catcher Terry Birdsall are Northrop employees. Northrop's Monte Halberg is the general manager and Ray Hofius, the scorer.

HONESTY PAYS FOR PAUL FARHI

Paul Farhi, son of Ralph Farhi of Product Support, Aircraft Division, has discovered how rewarding honesty can be.

The 13-year-old ninth grader was en route to school when he found a shiny pendant in the grass. He brought his find home and his parents had it appraised by a local jeweler. Its value: $1,500.

The Farhi's turned the diamond over to the West Los Angeles police station and in short order it was returned to its owner, a neighbor of the Farhi's who had received it as a 25th anniversary present.

The grateful owner promptly presented Paul with a $50 check.

Former Aquanaut Lends A Hand in Cold Water Tests

William Armstrong, a former Navy aquanaut, took leave from Northrop's Ocean Simulation program, to participate in a 23-day series of cold water experiments for the U.S. Navy.

Purpose of the experiments was to measure the amount of heat loss from breathing cold gas in deep water. The tests were carried out in simulated depths up to 1,000 feet of sea water in a pressure chamber at Annapolis, Maryland.

While a diver can largely maintain skin temperature with heated suits, he still loses considerable heat through breathing. It is possible to reach the point where respiratory heat losses alone exceed the amount of heat naturally generated in the body. This is important since at this point a diver's core temperature drops and he quickly becomes chilled.

Mr. Armstrong was selected for the experiments because of his previous work as a Navy aquanaut. He was a member of the third team for the Navy Sealab III program. He became interested in deep sea diving from reading as a child. Later he joined the Navy and then attended the service diving school. He left the Navy after 10 years' service at the conclusion of the Sealab program. He is now a diving systems engineer with the Electro-Mechanical Division, designing systems for the Ocean Simulation Facility at Panama City, Florida.

LOUIS VEERKAMP, Electro-Mechanical, displays the 231½ pound marlin he caught 12 miles northeast of Catalina Island. The marlin is the largest weighed in at Newport Beach in the last three years and one of the largest ever taken on a 30 pound line. Mr. Veerkamp, right, fought the big fish for three hours and 45 minutes before landing him. Shown with the champion fisherman is Capt. Milt Shedd, of 35-foot sport fisher "Sea World" and his wife, left, and Irv Shedd of the Electro-Mechanical Division's Product Engineering. At right are Mr. Veerkamp's wife, children and a friend. Mr. Veerkamp plans to have the fish mounted for his den.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Continental, 1966 2-dr. h/top, $1,400. 213-376-3790.

Buick, 1964 Riviera, p/s, p/b, a/c, $1,250. 213-325-8621.

Volkswagen, 1967, AM-FM radio, $945. 213-375-2789.

Truck, GMC, ¾-ton, $700. 213-370-6896.

Plymouth, 1970 Roadrunner, 383 eng., 4-spd., r/h, $1,895. 213-644-7906.

Mustang, 1969 GT351, 4-spd., 3.55:1 posi, new tires, batt., $1,950. 213-376-8102.

Volkswagen, 1969, new brakes, tires, batt., 51,000 mi., $1,300. 213-696-0787.

Station Wagon, 1959 Ford, V-8, $150. 213-676-4766.

Pickup, 1968 Ford F-100, a/c, V-8, $1,850. 213-425-3428.

Renault, 1968 Rio, radio, $900. 213-831-5304.

Mustang, 1970 Boss 302, Cyclone Mallory Mitchell, 3.90 posi., 15K, $3,000. 213-675-7443.

Datsun, 1969 sedan, 17,000 mi., $1,300. 213-372-5367.

Opel Rallye, 1971, 2-dr., 4-pass. sport cpe., auto. trans., 90 h.p., front d/brks., coil sprgs., AM radio, 10,500 mi., $2,175. 714-833-3297.

Buick, 1966 Wildcat, custom convt., full pwr., 445 eng., flight pitch trans., $1,100. 714-828-2856.

Toyota, 1969 Corona, 4-dr., auto., r/h, $1,395. 714-828-2857.

Buick, 1966 Wildcat, new tires, brakes, p/s, a/c, many extras, $1,200. 213-674-2278.

Pontiac, 1968 LeMans, 2-dr., V-8, a/c, $1,695. 805-495-6683.

Buick, 1961 Electra 225, 4-dr., r/h, air, all power, $375. 213-325-9248.

Rambler, 1965 4-dr. American 440, auto. trans., r/h, $575. 213-347-4087.

El Camino, 1959, $650. 213-676-0935.

Volkswagen, 1964, radio, 53,000 actual mi., $625. 213-675-2331.

Volkswagen, 1967, $775. 213-263-0057.

Chevrolet, 1965 Impala Super Sport convt., 395 turbo eng., $850. 213-675-6081.

Pickup Truck, 1969 Datsun, 7,000 mi., $1,175. 213-757-6806.

Chevrolet, 1968, & overhead camper, 8½', 6 cyl., stick shift, $2,800. 213-542-3465.

TR3A, 1960, $450. 213-833-9829.

Lincoln, 1966, 2-dr. h/top, a/c, full power, $1,325. 213-830-6163.

Grand Prix, 1967, 67,000 mi., min. bid $995. Credit Union ext. 1117.

Cadillac, 1959 Coupe de Ville, a/c, full power, $225. 213-674-8642.

Jaguar XKE, 1964 convt., chrome wires, extras, $1,895. 213-534-4420.

Ford, 1934, 5-window cpe., 289 c.i.d. eng., auto. trans., $1,500. 213-832-6394.

Mustang, 1967, 289 eng., r/h, a/c, p/s, $1,300. 213-833-0742.

GTO, 1965 Pontiac, r/h, 4-spd. trans., 2-dr. h/top, mag wheels, $750. 213-781-7418.

International Scout, 1970, travel top, 4-spd. trans., low mileage, 4-whl. dr., Warn hubs, $3,000. 213-835-0805.

Miscellaneous For Sale

Bicycle, Schwinn, girl's 3-spd., $20. 213-329-2842.

Walker, $7.50. 213-674-0852.

Kitchen Set, round table, 2 ext. leaves, 6 chairs, $40. 213-943-8187.

Radio, Grundig Majestic, mod. 3160, all bands, 12" remote spkr., $50. 213-675-6016.

Door, garage-boat, 8' wide, all hardware, $25. 714-968-1539.

Hide-A-Bed, Simmons, white naugahyde, opens to dble. bed, $65. 213-679-2864.

Vacuum Cleaner, Eureka, tank-type, all access., $10. 213-370-9124.

Air Conditioning Unit, Sears, for auto., complete, $50. 714-847-5938.

End Tables, commodes, matched pr., 26", walnut w/Never-Mar, $20 ea. 213-541-3000.

Guitar, elec. & amplifier, 10 W., $65. 213-377-5089.

Miscellaneous For Sale

Windows, 8 wood, 24" x 36", $2 ea. 213-379-4517.

Playpen, used 1 wk., $20. 213-325-3995.

Camera, Petri 7S, 35mm, f2.8, w/aux. lens, telephoto & wide angle, $40. 213-671-1815.

Sloop, Snipe by Varalyay, 16', fiberglass, north sails, custom trailer, fully equipped, $890. 213-375-7168.

Rifle, custom Jarment, cal. 220 Swift, equipped w/Lyman 8-power target-spot scope, maple stock, $175. 213-430-8400.

TV, b&w, 12" portable, VHF & UHF, $45. 213-676-7766.

House, 2-bdrm., w/sep. 1-bdrm. cottage, lge. R-2 lot, near Prairie & 104th St., $950 dn. & owner will carry first trust deed, $19,000. 714-826-5489.

Car Bed, baby's, w/infant seat & bassinet mattress, $15. 714-523-5304.

Piano, Hampton upright, $250. 213-379-7853.

Washer, Fridgidaire, w/dryer, Kenmore elec., $100. 213-542-8802.

Wig, 100% human hair, blond, shoulder length, $20. 213-370-9037.

Boots, Lowa hvy. duty German climbing & hiking, size 9½, $25. 213-645-1075.

Juicer, Oster, $18. 714-894-6365.

Stove, apt. size, 4-burner, $30. 213-530-5076.

Target Pistol, Ruger Mark V, .22 cal. bull bbl., 2 clips, $65. 213-327-4585.

Manifold, dual intake, 50% h.p. increase for 40 h.p. VW eng., $25. 213-821-4180.

Piano, Wurlitzer, $350. 213-328-5171.

Motor, 35 h.p. Evinrude, long shaft, elec. start., brass prop., many extras, $295. 213-378-2609.

Refrigerator-Freezer, Amana 22, side-by-side w/ice-maker, $300. 213-377-7670.

China, Noritake gold art pattern, over 100 pcs., 12-place setting & servers, $175. 213-376-4831.

Saxophone, 1 tenor, Noblet, $150. 213-423-1363.

Dining Table, antique, round, oak, 3 leaves, $125. 213-375-9340.

Drafting Board, 3' x 5' w/4' Bruning straight edge, $20. 213-323-8797.

Cabin, in Silverado Canyon, new dble. gar. & mobile home, on 2 lots, landscaped, furn. or unfurn., $18,000. 213-424-7351.

Cocktail Table, maple, dropleaf, $20. 213-532-6175.

Flash, electronic, Ultrablitz Meteor SP, KX II Guide No. 80, $35. 213-867-5809.

Desk-Chair, maple, student, $20. 714-826-0345.

Unicycle, w/poles, $15. 213-378-1863.

Bedroom Suite, 6-pc. twin, $65. 213-377-5936.

Chalet, Club San Moritz, Crestline, 1,400 sq. ft., furn., 1-¾ baths, sleeps 11, lot approx. 100' x 100' on corner, 80' concrete d/way, fully landscaped, $34,750. Box 1701.

Sailboat, Cal 20, new running rigging, $2,450. 213-393-3635.

Aircraft Kit, BD-5 Micro, priority No. 42, $1,600. 213-374-2915.

Bolts, assorted sizes, 40¢ a lb., or 3 lbs. for $1. 213-324-4648.

Motorcycle, 1970 Honda CB 350, $550. 213-325-3057.

Pool Table, 7', 1 yr. old, $150. 213-375-0813.

Dinette Set, China closet w/matching table, 4 chairs, solid oak, $195. 213-324-7257.

Chord Organ, Magnus elec., 12 chords, legs, seat & music books, $10. 213-671-1617.

Dryer, elec., Maytag, mod. DE 606, 5 yrs. old, $90. 213-327-6561.

Tires, 2, & wheels, snow treads, glass belted, size H-70-14, fits Chrysler or Ford, $50. 213-823-8694.

House, 3-bdrm., den, liv. rm., patio, bltins, 2 baths, $33,000. 213-830-5284.

Punch Set, 20-pc., lge. cut glass bowl, $5. 213-645-7972.

Sofa Bed, Riviera, gold, converts to 2 singles or dble. bed, used twice, $30. 213-374-7625.

Port-A-Crib, $15. 213-645-8004.

Travel Trailer, 16', new tires, stove & icebox, $300. 213-545-2826.

Piano, Wurlitzer console, walnut finish, w/bench, $750. 213-377-5781.

Typewriter, Underwood, standard, $45. 213-676-4464.

Travel Trailer, 1971 18' mobile traveler, self-contained, a/c, complete, $2,600. 213-534-0239.

Ski Boots, child's size 1, seldom used, $5. 714-523-5315.

Home, 2-bdrm., G.I. resale, 6% loan, Inglewood, $22,000. 213-673-2033.

Bookcase-Desk, Never-mar, 7' long, $40. 213-865-1939.

Know Your Industry

In describing its Boeing 747 superjet as "One Big Bird," Delta Air Lines points out that the passenger capacity of one of its 747s is "two and one-half times that of our nine-airplane fleet in 1941. In fact, the capacity of our three 747s surpasses, by over 120, the seating of the 29 airplanes in our fleet of 1950."

* * *

If your car gets 15 miles to the gallon, you could drive 18 million miles, or around the world about 400 times, on the propellants required for the Apollo-Saturn lunar landing mission. The Saturn V vehicle contains 5.6 million pounds, or 960,000 gallons, of propellant.

Miscellaneous For Sale

Mobile Home, 55' x 10', w/expando 13' x 8', redwood storage 7' x 5', awnings, cooler, extras, in Torrance adult park, $5,500. 213-320-2512.

Bunk Beds, complete w/bed boards, Salem maple, $25. 213-675-8813.

Pool, 10' x 3' deep, filter, all access., $45. 213-542-5241.

Boat, 16' Glaspar, Johnson motor, 75 h.p., hvy. duty trailer, boat cover & all equipment, $1,300. 213-329-7447.

Sailboat, 8' fiberglass racing Sabot, sand dolly, full rigging, $275. 714-527-3554.

Roll-top Desk, student's modern, $45. 213-835-9330.

Snow Chains, unused, fit lge. sizes, $5. 213-679-1631.

Volkswagen Tent, never used, stands alone or attaches to sliding door van, $100. 213-320-4349.

Car Carrier, $175. 213-534-3410.

Mini-Bike, Trail 70 Honda, $225. 714-635-2539

Condominium, 1,400 sq. ft., 2-bdrm., den, 2 baths, all elec., sub-parking, many extras, 10 mins. to Hawthorne, $30,500. 213-674-1400.

Stove, Magic Chef, 3-burner, w/thermostatic oven control for camper or trailer, avocado green, $60. 213-675-6532.

Camper, 8½', full cabover, incl. jacks, dolly, awning & intercom sys., $850. 213-325-2292.

Fry-Pan, elec., Sunbeam, $10. 213-676-3050.

House, 2-bdrm., extra wide lot, 60x141, room for 2 units in rear, $21,000. 213-671-6692.

Living Room Set, 6-pc. Danish modern, black w/white naugahyde, some access. $25. 213-831-1745.

Wanted to Buy

Refrigerator, reasonable. 213-375-4314.

Motorcycle, Yamaha 90 Enduro. 213-378-4422.

Floor Jack, 2-ton, hydraulic, in good condition. 213-756-9697.

Sewing Machine, Singer Golden Touch & Sew, mod. 750 preferred. 213-672-2370.

Utility Trailer, approx. 4 x 8 or 4-bike motorcycle trailer. 213-834-9205.

Car Rack, suction cup-type. 213-379-9202.

Drone Propellers, will pay $5 ea., must be in good condition. Box 1702.

Bicycle, old or wrecked Sting Ray, to repair for needy children. 213-430-4407.

Free (To Be Given Away)

Kittens. 213-645-1489.

Rentals Offered

Apt, 1-bdrm., Redondo Beach, 3 blocks to ocean, $140. 213-831-0453.

Apt, singles, lge. kitchen, all utils. paid, $110. 213-675-7125, 213-323-9134.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

House, Bass Lake, $150 wk. or $45 w/end. 213-374-3702.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

House, 3-bdrm., 2 baths, w/f/place, cpts., dps., fenced yd., Garden Grove area, $245 mo. 213-860-3022.

Cabin, Lake Arrowhead, north shore, 200 feet from lake, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

Motor Home, 1971 Pace Arrow, 20', sleeps 6, a/c, radio, self-contained, fully equipped, insurance, $150 wk., $50 w/end, 5¢ mile. 714-846-1858.

Condominium, Mammoth Mountain, sleeps 4, complete kitchen facilities, pool, $40 w/end, $80 wk. 213-785-1405.

House, unit, 3-bdrm., newly redecorated, 2 baths, cpts., dps., closed gar., near Northrop, children OK, $215. 213-675-7938, 213-644-3344.

Rentals Offered

Apt, unfurn., 2-bdrm., 1½ bath, cpts., dps., all elec., big balcony, dble. gar., 1 block from Aircraft Div., $185 mo. 213-644-1763, 213-644-0387.

Apt, 1-bdrm., bath, N. Hollywood area, near Valley Center, Laurel Canyon Dr., $115 mo. 213-329-1861.

Mobile Home, Vogue Manor, Hemet, call collect, $56 mo. 714-927-2811, 714-544-7240.

Child Care

Child Care offered, lunches, fenced yard, close to Northrop. 213-644-8577.

Lost

Money, $200 cash, clipped together w/paper clip, at Northrop, reward. Box 1703.

Found

Mechanical Drawing Pencil in Eng. Science Center, give proper description to claim, ext. 1647.

Personals

Want To share rides from Huntington Beach 7 a.m. to 3:42 p.m., Aircraft ext. 1468.

I wish to express my sincere appreciation for the generosity & kindness extended at the recent death of my son, John C. Green. MRS. ORLENA GREEN.

Our sincere thanks to all of Plant Maintenance & Construction for the kindness & thoughtfulness at the recent passing of my father, Frank. FRANKLIN WEITZEL FAMILY.

I wish to thank all my friends for their cards & well wishes during my illness. JOHN HOLMAN.

Ride Wanted, 7:30 a.m. to 4:12 p.m., Centinela & Hazel or Centinela & Florence, Inglewood. Aircraft ext. 1191, 213-674-4563.

Thanks to all my dear friends for the cards & lovely flowers that brightened all my days in the hospital & at home. MARIE TULLY.

Would like to share my horse stabled in Rolling Hills, English or western experienced rider, $30 mo. 213-370-7904.

My sincere thanks to my many friends at Northrop for the lovely remembrances of cards & flowers during my recent hospitalization. RITA HARRIS.

Thanks to my many friends at Aircraft Div., for the kindness & sympathy extended with the passing of our beloved wife & mother, Martha Osborn. STANLEY OSBORN, JUDY GETTINGER & FAMILY.

Thanks to my friends who were so generous with gifts & good wishes upon my retirement. CASH STALL.

We wish to express our sincere gratitude to all our friends at Northrop for their sympathy & contributions to the Hawthorne Community Center for needy children. HERBERT & KATHLEEN EDWARDS.

Typewriter wanted for disabled person, call Aircraft ext. 6454.

Ride wanted home at 4 or 4:12 p.m. from Plant I to Manhattan Bch. near Marine & Meadows on 21 St., AFPRO ext. 4573.

Pilot Wanted, instrument rated, to join flying group commuting to work between Orange County & Hawthorne airports. 714-544-5297.

For Sale or Trade

Cadillac, 1962, 4-dr. h/top, new trans., a/c, p/w, p/s, p/b, $450 or take trade-in for small car or 6-cyl. 714-523-5389.

NORTHROP NEWS
Vol. 29 No. 17

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Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

Division Will Participate In ION Omega Symposium

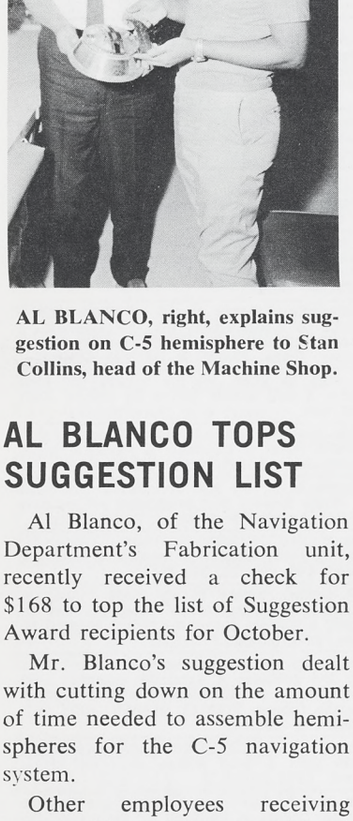
Six employees from Electronics Division's Navigation Department will participate in an upcoming symposium on the Omega system of navigation Nov. 9-11 in Washington, D.C.

Mike Turney, director of Business Development, has been chosen by the Institute of Navigation, sponsor of the symposium, to serve as chairman of the airborne Omega session. Included in this meeting will be the presentation of technical papers by Joe Rey, Ed Smith and Dr. R. W. Weinman, all of whom are assigned to the Northrop-Omega project.

Exhibit Planned

In addition, the division plans to set up an exhibit area at the symposium which will feature operational airborne and marine Omega receivers. Al Eldridge, Omega Marketing manager, and Bob Sanders, airborne Omega project engineer, will be on hand in the exhibit area to answer questions and demonstrate the equipment.

The three-day symposium is being co-sponsored by the Federal Aviation Administration, Naval Air Systems Command and National Oceanic and Atmospheric Administration.



AL BLANCO, right, explains suggestion on C-5 hemisphere to Stan Collins, head of the Machine Shop.

AL BLANCO TOPS SUGGESTION LIST

Al Blanco, of the Navigation Department's Fabrication unit, recently received a check for $168 to top the list of Suggestion Award recipients for October.

Mr. Blanco's suggestion dealt with cutting down on the amount of time needed to assemble hemispheres for the C-5 navigation system.

Other employees receiving awards this period were Richard Blanco, two awards of $20 each; and A. L. Gibbens, $15.

'BALLOWEEN' DUCATS

Ticket outlets at the Electronics and Aircraft Divisions are still offering ducats to NRC's big "Balloween" set for Saturday night at NRC Clubhouse, Hawthorne.

The $3 tickets cover all fun and liquid ingredients. Dress is optional and costume prizes will be awarded. The Phase V will play for dancing beginning at 9 p.m.

EILEEN HENNRICK provides escort for J. J. Parker, of Cubic Corp., at the Palos Verdes facility. Visitors issued escort-required badges must be accompanied by a Northrop employee at all times.

Annual Christmas Party Invitations To Be Distributed With Nov. Checks

Invitations for reservations to the annual NRC Children's Christmas Party will be distributed with paychecks Nov. 5 and must be returned no later than Nov. 19.

This big Shrine Auditorium event will be held Sunday, Dec. 19, for the families of employees of the Aircraft and Electronics Divisions, Corporate office and Northrop Corporate Laboratories.

Reservations specify the event is open only to Northrop employees and members of their immediate families who will have an option of attending one of two shows, one at 1 p.m. and the other at 4:30 p.m.

Each of these identical performances will include entertainment and gifts for children through the ages of 12 years.

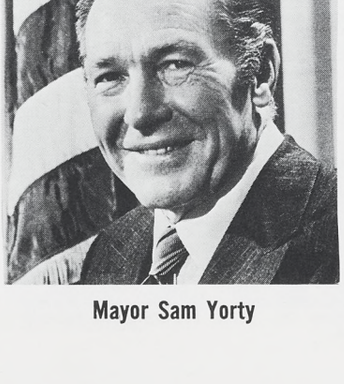
Dennis Mahaney and Bill Lewis head NRC Special Events committees at the Electronics and Aircraft Divisions, respectively, and are now planning the big annual show.

Mayor Sam Yorty Set for Speaking Engagement at Management Club

Los Angeles' Mayor Sam Yorty, considered by many to be the most colorful and controversial municipal administrator in the United States today, will be the guest speaker at tonight's (Oct. 20) meeting of the Electronics Division Management Club, according to Art Gandy, president.

The meeting will be held at 7:30 p.m., at the San Pedro Elks Club. The evening will begin with a social hour at 5 followed by dinner at 6:30.

Mayor Yorty first entered the political arena in 1936 when he filed for the State Assembly seat from California's 64th district. He won on the Democratic ticket and quickly established himself as a crusader and a prolific writer of legislation.



Mayor Sam Yorty

Following an unsuccessful bid for the United States Senate in 1940, Mayor Yorty returned to a full-time law practice. During World War II, he served as a combat intelligence officer and a civil affairs officer on the staff of General Douglas MacArthur.

In a special off-year election in 1949, Mayor Yorty regained his seat in the California Assembly, and the following year was elected to the United States House of Representatives. He was re-elected to Congress in 1952.

In 1954 the Mayor abandoned his seat in the House to run as the Democratic candidate for the U.S. Senate. He lost to Republican Tom Kuchel.

Mayor Yorty entered the mayorality race in Los Angeles in 1961, and won a narrow victory to become the first Democratic chief of Los Angeles in 40 years. He was elected to his third term of office in May 1969, following the largest voter turnout—a record 80 per cent—in the city's history.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

WIVES CAPTURE GOLFING HONORS

Jean Wilson, wife of Virg Wilson, shot a sizzling net 66 to win the Electronics Division NRC September Golf Tournament. Play was held at the Mission Viejo Golf Club.

Another Northrop wife, Loreen (Mrs. Roy) Jackson, took top honors in Third Flight action with a net 69.

Dave Jenkins fired a net 66 to win First Flight honors and Bob Sanders shot a net 70 to finish in the top spot in Second Flight competition.

Special awards went to Chuck Chamberlain for recording the longest drive of the tournament, and Mr. Jenkins for coming closest to the pin on one of the course's par three holes.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 29, No. 18 | November 1971

TRAVEL AWARD RECIPIENTS
Dona Johnston, seated, displays American Airlines Plaque as Jo Hodge, Irene Harris and Margaret Lantz, from left, beam approval.

Division Travel Organization Wins Top Award from American Airlines

Electronics Division's Travel organization, headquartered in Palos Verdes, recently received a President's Award from American Airlines.

The award, in the form of an engraved plaque, is signed by George A. Spater, chairman and president of American Airlines. It reads: "In recognition of their professionalism in the field of commercial aviation and for their role in developing air transportation as an effective means of communications in industry."

An American Airlines spokesman said that this type of award is made only on rare occasions, and is based upon quality of performance, individual performance, and the professional way in which travel is conducted.

The award was accepted on behalf of the division by Harry Basford, supervisor of the Travel organization, and Vic Gausepohl, chief of Accounting. Members of the Travel unit are Jo Hodge, Irene Harris, Dona Johnston and Margaret Lantz.

Eagle Scout Service Association Accords Honors to Bruce Salisbury

Bruce Salisbury, son of Bob Salisbury, supervisor of Master Scheduling for the Navigation Department, has been chosen by the Knights of Dunamis to receive the Knight Eagle award.

The Knights of Dunamis is the National Eagle Scout Service Association. Its membership is open to all who received the Eagle rank. The Knights work in cooperation with the Boy Scouts "to promote leadership, fellowship, citizenship and a spirit of service among all scouts everywhere."

Rare Award

The coveted Knight Eagle award, of which only little more than 100 have been presented since the Knights was founded in 1925, is given in recognition for "outstanding service to the Order of Dunamis and Scouting."

Bruce, 22, is currently serving as a Chaplain's assistant in the U.S. Army in Germany. He will receive the award upon his return to the United States next February.

Bruce has been active in Scouting for the past 13 years. Prior to his departure for Germany, he was instrumental in the establishment of several scout troops and cub packs in the Hawthorne area.

Mr. Salisbury is also very active in the Scouting program. He is presently serving as national assistant advisor for the Knights of Dunamis.

Engineering Team Prepares For Arrival of First INAS

Electronics Division recently dispatched a team of engineers to Scotland to study the ground support equipment used in the servicing of the Ferranti inertial navigation and attack system.

The division is under contract, to the Naval Air Systems Command, to establish a repair and maintenance depot for the system, which is used aboard the U.S. Marine Corps' new AV8A Harrier aircraft.

According to Burney Lipscomb, Harrier program director for Northrop, the team's visit will aid immeasurably a smooth transition to actual repair work when the first Harrier INAS arrives here for servicing in February 1972.

The team, which arrived in Scotland in late September, spent the first month of their 12-week visit in technical discussions with Ferranti personnel in Edinburgh.

Actual Experience

The remainder of their stay is being devoted to working alongside Royal Air Force personnel at air stations in Scotland and England, where they can acquire firsthand experience in operation of the ground support equipment.

Members of the Northrop team are George Keskeys, Toru Aihara, Bill Wilver, Bill Finch, Don Weaver, Ray Nowell and Lee Finch.

DONORS NEEDED

The final, and possibly the most important, Northrop bloodmobile visit of the year is set for 9 a.m. to 2:30 p.m. Dec. 10 at NRC Clubhouse, Hawthorne.

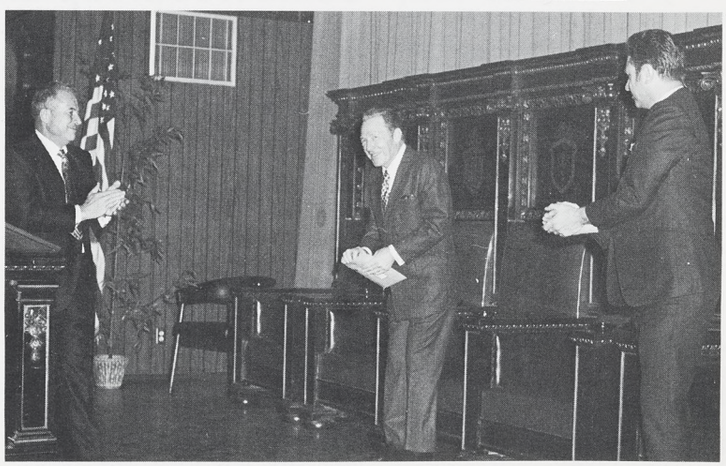
The demand for blood usually reaches a peak at the yearend with many requirements for surgery depleting normal reserves. All potential donors, including sustaining donors, are being asked to sign new cards now being distributed to Northrop Hawthorne facilities.

NEW POSTS FOR LLOYD, GASICH

Appointments of two key Northrop executives, F. W. "Bob" Lloyd and Welko Gasich, to new management posts have been announced by President Thomas V. Jones.

Mr. Lloyd, a 30-year company veteran, has been promoted to Northrop senior vice president for Operations, a new corporate position.

Replacing Mr. Lloyd as general manager of the Aircraft Division is Mr. Gasich, a Northrop vice president who will retain his present post as general manager of Northrop's Ventura Division in addition to his new duties.



SAM YORTY, mayor of Los Angeles, receives a warm welcome at last month's meeting of the Electronics Division Management Club. Greeting the mayor are Woody Sherwood, left, and Art Gandy. More than 300 club members were present to hear Mayor Yorty's talk on "Conflicts and Confusions."

Savings, Improved Capabilities Expected From IBM 370/165 Computer Acquisition

Northrop Corporation expects to realize substantial savings as well as benefits from improved capabilities in the processing of business and scientific data with a new IBM 370/165 computer system now being installed.

The value of the system is approximately $5,500,000. Northrop is purchasing 60 per cent of this amount with the remaining portion of the equipment being rented from IBM.

The IBM 370/165 computer system replaces three computers, two IBM 360/65's and a 360/40, used by Northrop since 1966.

Installation of the new equipment and removal of the old equipment began last month in the NDP Operations Center at Hawthorne which serves all Northrop facilities in the Southland. Full operational status of the new equipment is expected by early December.

The computer will reduce NDP operating costs by more than three-quarters of a million dollars annually. Improved capabilities for business data processing, 34-digit precision for scientific calculations, faster performance and more magnetic storage capacity are other expected benefits.

Paul Wierk, NDP manager, cites flexibility as extremely important in the present day environment: "The new computer system is a viable piece of equipment in that the capability productivity may be increased or decreased by the addition or removal of components. This will enable NDP to more closely align the equipment configuration with the workload requirements which will result in minimizing equipment costs."

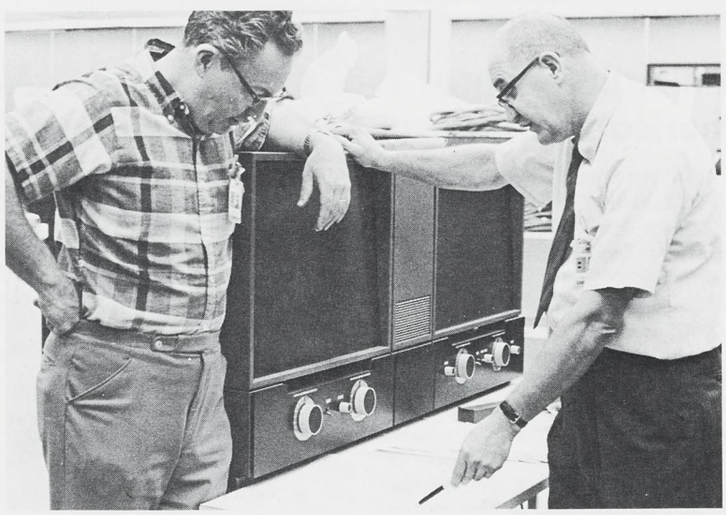
It's Compact

The IBM 370/165 is comprised of 60 individual units compared to approximately 100 units which made up the three replaced computers.

Five full-sized moving vans were required to truck the IBM 370/165 to Hawthorne. Installation requires three weeks of around-the-clock work progressing seven days a week. It requires special electrical power and has necessitated the installation of a new motor generator converter unit connected directly to an Edison substation, all to minimize risks of power disruption. Special air conditioning and plumbing with 40-degree water is required to cool the central components of the computer system. Installation of the 370/165 also involves over 300 multiple cables installed under a raised floor to interconnect the component units and provide controls and necessary power.

Northrop personnel concerned with the computer have been phased through a series of special orientation sessions. Others are scheduled to follow.

This major improvement in data processing equipment is the third to be undertaken by Northrop in the past decade to keep abreast of the state-of-the-art and benefit from improvements in cost performance.



RICH CARLSON, LEFT, JIM PINOSKI DISCUSS TASKS AT HAND

HAWAIIAN TOUR BRIEFING SET

A final briefing meeting for the annual NRC "Hawaiian Holiday" is set for 8 p.m. Friday at Dandel's Restaurant, 12000 S. Western Ave.

Information, instructions and facts pertinent to the 10-day group tour of the islands over the long yearend holiday will be available. Questions will be welcomed.

The tour price is $398 per person and the itinerary includes visits to four islands. Reservations will be accepted at Personnel Activities through Dec. 6.

MOVED LATELY?

If you have moved or changed your mailing address recently, Northrop Personnel Records offices need your new address. Current addresses are important to insure receipt of company mail or W-2 tax forms to be distributed shortly after the beginning of 1972.

Jamboree in Japan Busy Time for Ayers

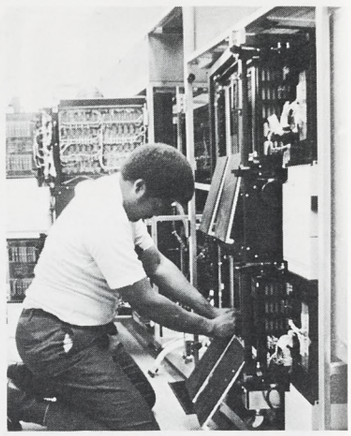
Donovan Ayers, son of H. W. "Bunky" Ayers, an engineer in the Electronics Division's Advanced Systems Department, recently returned from Japan where he attended the 13th annual Boy Scout World Jamboree.

During the three-week event, Donovan and the other boys in his troop had the opportunity to visit many parts of the country including Tokyo, Kyoto, Yokohama City and Mt. Fuji.

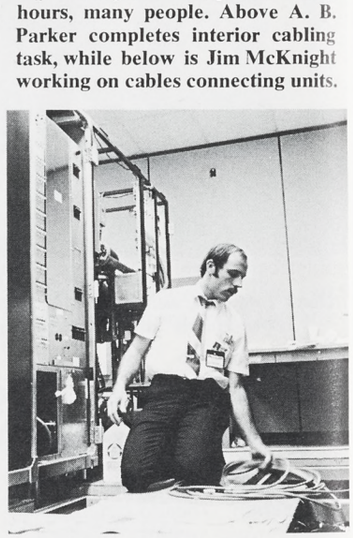
In an account of the troop's visit, carried in a bylined article in the South Bay Daily Breeze, Donovan wrote that each day of their stay was filled with activities, "from the opening ceremony where the parade of flags of 99 of the countries represented took place, to the spectacular closing ceremony that ended with an unforgettable display of fireworks."

Donovan said that his troop played many types of games with their fellow scouts, held a joint campfire with some Japanese boys and participated in the Jamboree's Skill-O-Rama, a showplace where each troop does or shows something characteristic of its area.

"We were a little sad to have our big adventure end," he said. "We brought with us many memories not soon to be forgotten, some pictures and souvenirs of a beautiful and hospitable country, and, perhaps most important, some new friends."



INSTALLATION of new Northrop computer required many hours, many people. Above A. B. Parker completes interior cabling task, while below is Jim McKnight working on cables connecting units.



SOCIETY PICKS NORTHROP MEN

Northrop's Richard Schneidmiller and R. E. Herfert have taken on dual jobs with a local and national professional society.

Mr. Schneidmiller, Corporate Laboratories, becomes past president of the Southern California Society for Electron Microscopy. He will also serve as vice chairman of the 1972 national Electron Microscopy Society of America/Pan Pacific Conference.

Mr. Herfert, Aircraft Division, is new first vice president, physical sciences, for the local chapter and will act as program chairman for physical sciences at the 1972 meeting.

RECORD CHECK

Northrop Credit Union statement of accounts were distributed recently along with auditor's account verification records.

Members who did not receive them are asked to contact John B. Knight & Co., 2926 Santa Monica Blvd., Santa Monica 90404. Queries should include the member's name, address, account number and mention of Northrop Credit Union.

Northrop Employees' Savings Plans Annual Report for 1971

The tenth Annual Report of the Northrop Employees' Savings Plans is presented below. Publication in the Northrop News makes the report available to all employees.

This report covers the cash transactions made during the fiscal year ended July 31, 1971, and during the period since the inception of the Salaried Plan on Feb. 1, 1962, and the Hourly Plan on Feb. 1, 1966. It also shows the condition of the Trust at the close of business on July 31, 1971, the values of the respective funds, the investments held as of that date and the unit values which have prevailed since the plans were started.

Summary of Transactions through 31 July 1971

	Fiscal Year 1971	Since Inception
Cash Received:		
From Salaried Participants	$ 5,745,009	$ 41,703,563
From Hourly Participants	1,120,227	6,883,486
Total Participant Contributions	$ 6,865,236	$ 48,587,049
From Northrop (50% Participant Deposits less forfeitures)	3,063,165	20,762,311
Total Contributions	$ 9,928,401	$ 69,349,360
From Sale of Bonds	5,542,396	24,439,434
From Sale of Stocks	10,638,890	31,156,830
From Income on Bond Fund Investments	720,959	3,236,998
From Income on Stock Fund Investments	481,321	1,945,758
From Income on Northrop Stock Fund	518,174	2,398,640
From Sale of Temporary Investment in Profit Fund		1,100,000
Total Cash Received	$27,830,141	$133,627,020
Cash Paid Out:		
For Purchase of Bonds (Including Accrued Interest Paid)	5,434,461	36,764,933
For Purchase of Stocks	12,452,773	50,333,448
For Purchase of Northrop Stock (156,600 shares during Fiscal Year 1971; 780,058 shares since inception)	3,370,067	23,295,364
To Participants on Withdrawal (in addition to 78,957 shares of Northrop stock during Fiscal Year 1971; 218,688 shares since inception)	6,607,208	23,039,141
Total Cash Paid Out	$27,864,509	$133,432,886
Balance	(34,368)	194,134
Cash on Hand – Beginning of Period	228,502	
Cash On Hand 31 July 1971	$ 194,134	$ 194,134

Summary of the Condition of the Trust at 31 July 1971

Cash on Hand:		
For Purchase of Bonds		$ 30,855
For Purchase of Stocks		74,129
For Purchase of Northrop Stock		89,150
Total Cash on Hand		$ 194,134
Interest Accrued on Bonds		177,623
Dividends Declared but not Received on Stocks		9,637
Market Value of Investments:		
Purchased with Participant Contributions:		
Bonds (Cost $11,720,589)		10,311,887
Stocks (Cost $20,718,195)		23,812,963
Purchased with Northrop Contributions:		
Northrop Stock (Cost $15,908,026)		10,736,201
Total Value of Trust		$ 45,242,445
The Value of the Trust is Divided as Follows:		
Participants' Savings Accounts:		
Bond Fund	$10,520,365	
Stock Fund	23,896,729	34,417,094
Participants' Profit Account (Northrop Stock)		10,825,351
Total Value of Trust		$ 45,242,445

INVESTMENTS AS OF 31 JULY 1971

BOND FUND	Face Amount	Cost	Market
Public Utility	$ 2,676,000	$ 2,680,246	$ 2,222,022
Industrial	2,766,000	2,772,304	2,148,367
U.S.A. Government	1,519,000	1,511,101	1,471,722
Bank Finance	1,100,000	1,096,313	926,294
Federal Agencies	2,220,000	2,189,375	2,166,640
Foreign	367,000	360,250	265,842
Commercial Paper	1,111,000	1,111,000	1,111,000
	$11,759,000	$11,720,589	$10,311,887

STOCK FUND		Shares	Cost	Market
American Airlines, Inc.	com	4,500	185,829	123,187
American Express Co.	pfd	2,000	139,000	233,000
American Express Co.	com	6,000	354,960	699,000
American Electric Power	com	10,000	287,770	275,000
American Hospital Supply Corp.	com	20,200	442,693	714,575
ARA Services, Inc.	com	2,800	366,257	371,700
Avon Products	cap	6,600	358,494	633,600
Black & Decker Mfg. Co.	com	11,250	344,474	846,562
Burroughs Corp.	com	4,000	490,512	468,000
Carolina Power & Light Co.	com	3,000	133,017	72,000
Citizens & Southern Natl. Bank of Ga.	com	10,000	226,820	320,000
Coastal States Gas Producing	com	5,000	258,050	243,750
Combined Insurance Co. of America	com	9,840	383,512	418,200
Control Data Corp.	com	5,000	580,252	252,500
Deere & Co.	com	10,500	459,662	462,000
Eastman Kodak Co.	com	6,040	349,759	456,020
Federated Department Stores, Inc.	com	18,000	624,181	783,000
Ford Motor Credit Co.	Demand Notes		987,000	987,000
General Electric Co.	cap	14,000	631,705	747,250
General Motors Corp.	com	11,500	851,091	882,625
Harcourt, Brace, Jovanovich	com	2,800	238,144	111,300
Harris-Intertype Corp.	com	6,000	373,140	301,500
Hewlett Packard	com	1,200	59,293	46,200
Hyatt Corp.	com	10,400	299,475	254,800
Illinois Power Co.	com	2,100	80,611	72,188
International Business Machines Corp.	cap	2,606	455,817	758,997
International Nickel	com	20,000	787,251	662,500
International Paper Co.	com	10,000	342,510	322,500
International Tel. & Tel. Corp.	com	17,000	904,947	1,054,000
Johns Manville Corp.	com	10,000	398,311	407,500
Johnson & Johnson Co.	com	12,000	223,609	1,128,000
Kansas City Power and Light	com	6,000	205,360	203,250
Kentucky Utilities	com	20,700	578,674	527,850
Merck and Co.	com	5,000	523,426	513,750
Middle South Utilities, Inc.	com	7,600	184,960	181,450
Norton Simon, Inc.	com	10,554	500,492	567,277
Owens Corning Fiber Glass	com	3,000	118,680	130,125
Owens Illinois, Inc.	com	9,000	653,155	510,750
Pennsylvania Life Co.	com	9,400	357,350	307,850
Perkin-Elmer Corp.	com	8,000	353,842	366,000
Polaroid Corp.	com	3,046	338,505	304,981
Public Service Electric and Gas	com	3,000	80,250	80,250
Reynolds Metals Co.	com	6,200	254,553	143,375
Sanders Association, Inc.	com	10,000	464,241	116,250
Schering Corp.	com	10,000	549,110	822,500
Schlumberger, Ltd.	cap	7,500	279,752	1,041,563
Southern California Edison	com	3,300	109,992	108,488
Southern Co.	com	5,000	137,963	108,750
Standard Oil of New Jersey	com	5,000	385,846	382,500
TRW, Inc.	com	7,200	238,075	253,800
Union Oil Co. of California	com	5,000	282,408	162,500
Wickes Corp.	com	10,000	375,105	425,000
W.T. Grant Co.	com	10,000	473,447	625,000
Xerox Corp.	com	7,300	728,991	821,250
			$20,792,323	$23,812,963

PROFIT FUND	Shares	Cost	Market
Northrop Corporation	561,370	$15,908,026	$10,736,201

HISTORY OF UNIT VALUES

Valuation Date	Bond Fund	Stock Fund	Profit Fund
7/31/62	$1.00678	$ .82673	$ .84299
7/31/63	1.07228	1.03982	.74533
7/31/64	1.12346	1.25478	.64951
7/31/65	1.18096	1.31530	1.05750
7/31/66	1.12924	1.38824	.97052
7/31/67	1.17227	1.78819	1.78347
7/31/68	1.17991	1.98598	1.62488
7/31/69	1.14589	1.94687	1.48373
10/31/69	1.14634	2.22865	1.65253
1/31/70	1.11300	1.97274	1.14087
4/30/70	1.14421	1.78880	.86877
7/31/70	1.14710	1.66295	.73156
10/31/70	1.18240	1.83839	.75679
1/31/71	1.32315	2.16332	1.13340
4/30/71	1.26402	2.44196	.99509
7/31/71	1.31717	2.29024	.82760

The complete annual report of the Trustee is available for inspection, during regular first shift hours, in the Industrial Relations Office serving your facility.

Murphy Turns Old Mail Van Into A Rolling Home

When M. G. "Murph" Murphy saw the price tag on a new camper, he decided to see what he could do about building one himself.

He began by buying a surplus U.S. mail van for $400, a $2 ice box at a surplus sale, and such odds and ends as pipe, paneling and foam rubber.

So for less than $500, plus lots of work which he insists is really fun, he has converted the van into a camper that is a head-turner everytime he drives it to work at Anaheim.

He fitted the inside with windows, overhauled the back to make a door, fitted four bunk beds made of pipe and covered with foam rubber, and added a chair, rug, wall paneling, and cabinets. Under the bunks are food storage boxes stocked "for a quick getaway when I get the urge."

Mr. Murphy did all the work himself, except for the painting. The basic painting was done by his father-in-law. And his mother-in-law decorated the sides with extremely clever cartoons depicting members of the Murphy family as birds perched on a tree limb.

"I had a lot of fun building the camper," Mr. Murphy reports. "The fact that the original mail van had 94,000 miles on it hasn't been a liability either. It now has 111,000 and hasn't caused any trouble at all."

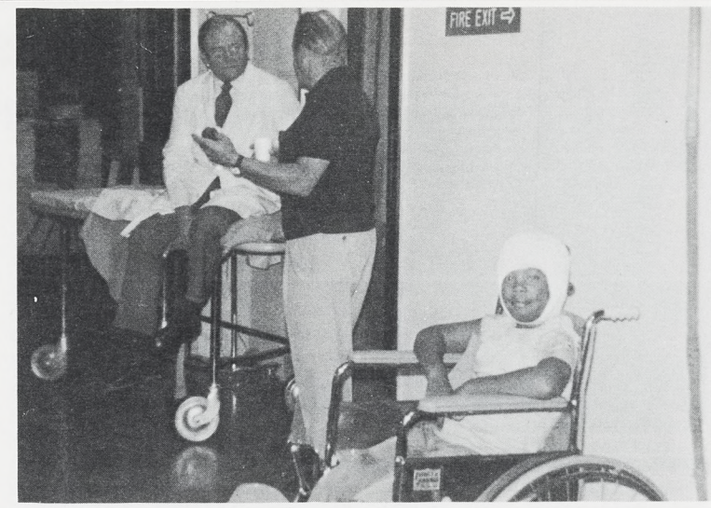
Although he uses the van constantly, it is not finished, and probably never will be. He keeps adding and subtracting to improve comfort and convenience.

His next project is to replace the bunks with two double beds, and then he intends to add a bathroom.

The name of the van? Considering its former uses as a mail truck and the nationality of its present owner, what else but "Irish Male."

Mr. Murphy is in Logistics at the Electro-Mechanical Division.

M. G. MURPHY AND HIS 'IRISH MALE' CAMPER



TAKE FIVE
Terri Kennedy relaxes in a wheelchair during a break in the filming of "The New Doctors." Seated in the background is television star E. G. Marshall.

Silent TV, Movie Roles Earn Plaudits for Trio

Without saying a word, the children of John Kennedy have established themselves as veteran television and motion picture performers.

Over the past year the young thespians — Terri, 9, Kevin, 8, Alfreda, 6 — have won silent roles as extras in a number of top-rated shows.

Some of their credits are "Marcus Welby, M.D.," "Columbo," "McCloud," "The New Doctors" and "Walt Disney World." In addition, Alfreda will be appearing in the soon-to-be released movie, "Gidget Gets Married," and Terri is appearing in a current Pepsi Cola commercial.

Their father, who works as an offset pressman in the Reproduction unit, Electronics Division, said the children got their start in acting through a friend of his who works as a talent scout for a Hollywood casting agency.

"All I had to do was send the agency a photo of each child. As openings came up, my wife would take the children in for an interview.

"I had no idea, though, that all three of them would become so heavily involved in such a short period of time," Mr. Kennedy said. "Later, however, I found out that once a director becomes acquainted with children who are cooperative and well-behaved, he calls on them again and again."

The proud father readily admits that he and his wife are as enthusiastic as their children are about the entertainment industry —especially when they have the opportunity to visit the sets and meet with the stars.

"So far it has been a wonderful experience for the entire family," he said. "And, if nothing else, it has taught my children what I mean when I say, Silence is Golden."

They Met on Hawaiian Tour, Wed, Now Retire Together

An NRC Christmas tour to Hawaii seven years ago is the reason there was a double retirement party at the Aircraft Division recently.

The party was for Margaret and Mike Bartmus, who closed out their Northrop careers with 26 and 20 years, respectively, of work with the company.

Seven years ago Margaret was working in Correspondence Control and Mike was with Maintainability. Although he often came to her department to pick up work, somehow they never met.

Anyway, the stranger-neighbors both joined the NRC Holiday Tour in 1964 and first met 1,900 miles from home in Hawaii. Margaret, a widow, and Mike, a widower, discovered that they had missed something by not having met before. They were married soon after their return.

Northrop Recommended

Mrs. Bartmus joined Northrop in 1945 because a neighbor who had worked for Northrop during the war had recommended the company as a good place to work.

Mr. Bartmus came to the Aircraft Division 20 years ago. At the time he owned a service station, but found being on his feet so long was a strain. "I joined Northrop because I'd had several customers who worked at Northrop and they all told me there was no better place to work."

Upon retirement, the Bartmus' say they will stay in this area. "We have too many friends here to move," they said.

They also hope to get some traveling done. "In fact," Mr. Bartmus said, "that Hawaii trip seven years ago turned out so well, that we might join NRC for another one sometime."

MARGARET AND MIKE

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Rambler, 1963 American, 49,000 act. miles, $200. 213-370-9124.

Chevrolet, 1962 Nova II convt., $300. 213-377-4251.

Chevrolet, 1955, 3-spd. trans., 292 eng., w/Sig Ericon cam, 4-bbl. carb., radio, $650. 213-542-2638.

T-Bird, 1963 convt., sport mod., 48,000 mi., $775. 213-675-4786.

Chevrolet, 1964 Impala, 2-dr., p/b, p/s, r/h, $625. 213-542-2390.

TR 4, 1962, $250. 213-360-0470.

Volkswagen, 1968, sun roof, $995. 213-757-4646.

Chevrolet, 1965 Impala Super Sport, a/c, full power, $750. 213-377-7670.

Subaru 360, 1971, under 300 mi., 60 mpg, $800. 714-826-2007.

Lincoln, 1965 Continental, many extras, $1,500. 213-679-1179.

Buick, 1965 Skylark, 2-dr. h/top, auto., r/h, a/c, $625. 213-542-3459.

Firebird 400, 1969, 26,000 miles, $2,500. 213-676-7272.

Mustang, 1967, 289 eng., auto., r/h, p/s, air, $1,195. 213-833-0742.

Chevrolet, 1970 Malibu spts. cpe., a/c, power s&b, radio, 300 h.p. 350 cu. in. V-8, $2,995. 714-879-4273.

Mustang, 1966, 6 cyl., stick shift, h/top, 2-dr., $725. 213-532-7846.

Triumph, 1968, 650 cc, $850. 213-376-3277.

Cutlass, 1962 F-85, convt., console 4-spd. trans., $295. 213-377-3552.

Chevrolet, 1964, 2-dr., V-8, new eng., trans., $700. 213-372-5880.

Volvo 142S, 1968, less than 30,000 mi., new d/brakes, 4-spd. w/overdrive, $1,850. 213-675-4344.

Plymouth, 1969 GTX 440, auto., p/b, $1,700. 213-675-4764.

Chevelle, 1968 Malibu sedan, 6-cyl., $1,000. 213-377-7576.

T-Bird, 1962, $350. 213-670-4702.

Chrysler, 1960 Windsor, 4-dr. sedan, new Sears Die-Hard batt., good tires, $195. 213-324-1719.

Triumph 250, 1968, min. bid $1,300; Bonneville, 67,000 mi., min. bid $845. Credit Union ext. 1117.

Miscellaneous For Sale

Picnic Table, redwood, 2 benches, $10. 213-943-8187.

Rifle, Springfield M-1 Garand, 30-06 cal., 10 clips, approx. 100 rnds. of brass, $100. 714-894-6365.

Pool Table, Sears full-size, cue sticks & balls, 6 yrs. old, $50. 213-325-3995.

Box Trailer, lockable top, convt. for small boat, $55. 213-375-7168.

Sewing Machine, National rotary elec., wooden cabinet, $25. 213-376-4831.

Dinner Ring, ladies' diamond, never worn, $175. 213-835-9330.

Rifle, 30.06 semi-sporterized, ammo, military type Mauser action, $50. 213-530-5076.

Love Seat, gold brocade victorian, $250. 213-832-3502.

Home, tri-level, 2,500 sq. ft., Southshores, P.V., 4-bdrm., 2½ baths, dining, den, rumpus rms., bltin kitchen w/bkfst. bar, $52,500. 213-831-3050.

Aquarium, 15-gal. Pemco w/hood, access., $12. 714-962-4235.

Snow Chains for VW, 5.60-15, never used, $10. 213-371-3615.

Sailboat, 15′ Glen L 15, trailer, cover, $700. 213-963-5524.

Wig, Brenda style, brown, short, synthetic hair, worn twice, $12.50. 213-329-6748.

Stereo Hi Fi, Norelco solid state, 2 sep. spkrs., 6 w. ea., walnut, $75. 213-673-0678.

Baby Buggy, collapsible, $20. 213-322-2364.

Bed, dble., Spanish Mediterranean headboard, $25. 213-379-4774.

Catamaran Sailboat, 14′ Hobie, trailer, many extras, $995. 213-397-5448.

Camper, 1969 cabover, 8½′, sleeps 4, 20 gal. water tank, 3-burner stove, 75 lb. ice box, $600. 213-376-5156.

Miscellaneous For Sale

Bedroom Set, Thomasville Shalimar, walnut & pecan, dble. bed, h/board w/frame, dble. dresser & mirror, 2-drwr. nightstand, $250. 213-670-6090.

Auto Body, 1956 Chev. wagon, $50. 213-379-1759.

Bumper Racks for motorcycle, $10. 213-679-4863.

Motorcycle, 1970 SL 90 Honda, $300. 213-377-5897.

Motorcycle, 1970 Honda Trail 90, licensed for street, $300. 213-327-8927.

Motorcycle, Honda 50, tools, helmet, $115. 714-633-5521.

Cement Mixer, 1⅓ cu. ft. mix cap., Sears wheelbarrow type w/elec. motor, $80. 213-377-5853.

Surfboard, 6′ 10″, $95. 213-375-6397.

Stereo Theater, 1960 Magnavox, 21″ b&w TV, AM-FM radio, changer, dk. mahogany, $150. 213-721-6764.

Golf Irons, complete set, matched, Power Bilt, incl. wedge & Arnold Palmer putter, $60. 213-324-3690.

Jackets, men's sizes 42 & 44, $10 ea. 213-675-2772.

Knitting Machine, Knitking, 6 yrs. old, extras, $150. 805-498-2307.

Golf Clubs, 4 woods, 10 irons, $50. 213-454-1953.

Parakeets, 6 wks. old by Christmas, $5. 213-378-3219.

Metal Lathe, 12″ swing, w/access., $400. 714-897-5874.

Coat, size 10, imitation leopard, dress length, princess style, $25. 213-833-7819.

Dryer, RCA Whirlpool, elec., used 6 mos., $30. 714-776-2620.

Motorcycle, 1971 SL125 Honda, $450. 714-524-1376.

Home, corner, 2-story, 4-bdrm., 2 baths, cpts., dps., bltins, across from new Los Cerritos shopping center, $32,500. 213-860-3022.

Piano, Gable-Nelson, walnut, spinet, bench, $355. 213-541-1638.

Guitar, folk, $30. 213-377-6648.

House, 2-bdrm., extra wide lot, 60x141, room for 2 units in rear, No. Inglewood, $21,000. 213-671-6692.

Golf Clubs & bag, $30. 213-376-6489.

Hardtop, for 1963-67 Corvette, $150. 213-631-3008.

Washing Machine, Kelvinator, 6 yrs. old, $25. 714-879-9616.

Organ, Wurlitzer electronic, mod. 4150, 2 manual w/floor pedals & chord access., sep. mod. 45 Leslie spkr., $850. 213-363-2113.

Mobile Home, 48′ x 8′, new awning & refrig., cpts., $2,700. 213-973-1007.

Camera, 35 mm Yashica, f1.8, 1-1000 spd., coupled expos. meter, case, electronic flash, $60. 213-375-6467.

Dryer, elec., Kenmore, coppertone, 2 yrs. olds, 220 V., $75. 213-679-8534.

Umbrella Tent, 9′ x 9′, alum. supports w/ canopy, $20. 714-523-5315.

House, 3-bdrm., 2 baths, pool, assume 5¼% loan, $24,450. 213-896-7235.

Acreage, 5 acres, Adelanto City, water & elec., $100 dn., $100 mo., $10,000. 213-378-1026.

Dishwasher, Hotpoint Deluxe, portable, cutting board top, $75. 213-863-3900.

Piano, upright, recently modern refinished, $185. 213-696-7529.

Saxophone, tenor, Noblet, $150. 213-423-1363.

Motorcycle, 1971 Yamaha Enduro 125, extras, $435. 213-835-9149, 213-834-3163.

Refrigerator, $5. 714-832-7014.

Tire, Goodyear custom wide tread, polyglas F70-14, belted, $25. 213-371-5037.

House, 3-bdrm., dble. bath, patio, dps., bltins, $33,000. 213-830-1216.

Mattress, king size, box springs, steel frame, $125. 213-324-4845.

Mobile Home, 1970, 12 x 60, 2-bdrm., 1½ baths, awnings, skirting, metal shed, many extras, $6,900. 714-678-2542.

Pool Table, 9′, w/thick slate, all access., $495. 213-374-6584.

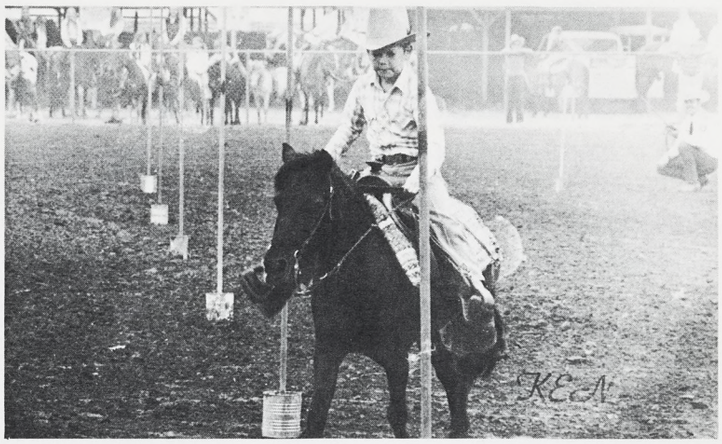
Surfboard, semi-gun, 6′ 6″, $55. 213-823-1788.

Fish Tanks, 30, 20, & 5 gal., all equipment, $40. 213-398-9100.

Bedroom Set, 12-pc., Mediterranean, $500. 714-826-0109.

Telephoto Lens, 135 mm Komura, exacta mount, $40. 213-323-8797.

Acreage, 10 acres, near new airport, Apple Valley, $7,000 ea. 5 acres or $13,000. 213-327-4356.



TOMMY RILEY, 7, son of the Electro-Mechanical Division's Jerry Riley, circles final pole to take fourth in recent pole bending contest. He seeks to catch his sister, Kathy, the current state champion. The pony is named Smokey.

Miscellaneous For Sale

Trail Bike, Honda 55, new top end, trail sprocket kit, car rack, $145. 213-374-4780.

Pups, collie, AKC, 8 wks. old at Christmas, $75-$125. 213-370-4475.

Motorcycle, 1969 Honda 350 street scrambler, $495. 213-329-2842.

Harmonium, antique, cherry wood, $195. 213-346-3751.

Shopsmith, Mark 7, some extras, $300. 213-676-8791.

Pup, poodle, AKC, apricot, female, small miniature, $75. 213-866-4104.

High Chair, Cosco, $10. 213-676-6738.

Sewing Machine, cabinet model, elec., zig-zag & sewing discs incl., $45. 714-772-3182.

Surfboard, Rick, 7′ long, 18″ wide, $50. 213-374-8608.

Record Player, G.E., 4-spd., stereo, w/matching 100 album cap. stand, detach. spkrs., lifetime diamond stylus, $85. 213-376-2725.

Mini Bike, Bonanza 1200, $110. 213-675-0490.

Flotation Tires, set of 11.5 x 6, mounted on wide whls., fit VW dune buggy, $90. 213-821-4180.

Stamp Books, Blue Chip, 30 books, $2.50 ea. Box 1801.

Tape Deck, Muntz 4 & 8, converter, 25 tapes, carrying box, $60. Box 1802.

Travel Trailer, 22′ Santa Fe, self-contained, air cond., $2,895. 805-498-6349.

Dog, 2½ yr. old female, purebred, Australian shepherd & 8 mo. old pup, female, $35. 213-378-1793.

Chain Saw, McCulloch, 250 series, 2½ yrs. old, $125. 213-679-5701.

Mini Bike, 3 h.p., $65. 213-676-0666.

Bedsteads, twin, wood, dresser & night stand avail., $12.50 ea. 213-377-5936.

Tape Recorder, Concord transistorized stereophonic 550, 3-spd. w/instant stop, 4-track stereo w/sep. vol. controls & VU meters, $89. 213-679-2864.

Furnace, forced air, American Standard, nat. gas, 100,000 btu input, 3 yrs. old, little used, $50. 714-871-7625, 714-879-4692.

Condominium, 1,400 sq. ft., 2-bdrm., den, 2 baths, all elec., sub-parking, many extras, 10 mins. to Hawthorne, $29,900. 213-674-1400.

Cabin, modern, Lake Gregory, near lake & stores, terms, $10,000. 213-821-8150.

Divan & matching chair, Kroehler, blue, $60. 213-375-6114.

Fireplace, standing-type, 65″ high, w/all hardware, screen & grate, $200. 213-378-9660.

Console, Admiral, stereo FM-AM radio-phono. w/6 matched, balanced spkrs., $100. 213-323-5740.

Motorcycle, Yamaha, 1971 Enduro, 90 cc, $350. 213-676-2854.

Door, 32′ x 6′ 8″, $4. 213-644-0003.

Dryer, Whirlpool, nat. gas, 25,000 btu/hr. $40. 213-375-5316.

Skis, Hart 190's, Nevada toe, Solomon cable heel, $50. 213-644-9257.

Baby Buggy, Hedstrom, converts to car bed or stroller, $49.95. 213-534-0346.

Wanted to Buy

Bicycle, boy's Schwinn. 213-676-6382.

Photographic stereo equipt., camera, projector, film mounting equipt. or supplies. 213-831-6533.

Wanted to Buy

Dinnerware, Sango, boutonniere pattern, need replacements. 714-535-6228.

Hardtop, for 1968 Corvette convert. 213-326-7528.

Air Compressor, portable w/tank, elec. motor, 1½ to 3 h.p., 115 or 220 V. 213-457-2057.

Fender Skirts, for 1941 Cadillac Fleetwood 60 Special sedan. 213-299-0938.

Corvair, 1963 Spyder. 213-374-3702.

Table, old, round, oak. 213-673-4322.

Bicycles, man's & woman's, 3 or 5-spd. 213-545-2577.

Free (To Be Given Away)

Dog, white, male, pekingese, thoroughbred, all shots. 213-378-7846.

Rentals Offered

Cabin, 2-bdrm., sleeps 8, Big Bear-Moonridge area, f/place, TV, bltin AM-FM radio, lge. kitchen, $90 wk., $40 w/end. 213-541-3000.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

House, 4-bdrm., 1 yr. old, 2,350 sq. ft., liv. & family rms., cpts., playrm., dps., heated pool, avail. in Jan., $42,500 or $395 mo. 213-860-9271.

Apt, 2-bdrm., Hawthorne, across from Aircraft Div., unfurn., water & garbage pd. $140 mo. 213-675-7748, 213-676-4676.

House, 4-bdrm., 2 baths, cpts., dps., bltins, children o.k., dble. car gar., patio, fenced yard, $275 mo. 213-329-6697.

Apt, 1-bdrm., ocean front, cpts., dps., utilities pd., Playa del Rey, $185 mo. 213-823-5526.

Mobile Home Space, Vogue Mobile Manor, Hemet, $56 mo. 714-544-7240.

Condominium, Mammoth Mountain, sleeps 5, complete kit. facilities, sauna, pool, rec. room, $40 w/end, $100 wk. 213-785-1405.

Personals

My sincere thanks for your help & expression of sympathy during the prolonged illness & passing of my husband. BOBI ROTHROCK.

Disabled employee needs transportation to & from work from Santa Monica, 1st shift, Electronics Haw. ext. 432, 213-395-9285.

Share Ride, Woodland Hills & vicinity to Anaheim, 1st shift, Anaheim ext. 1056, 213-347-1712.

Share Ride, 8 a.m.-4:42 p.m., meet anywhere in Glendale or La Crescenta, Aircraft ext. 1006, 213-248-9654.

Anyone interested in 1 week ski trip to Park City, Utah, in February call 714-828-4853.

We wish to express our deepest appreciation to our many friends who made our retirement from Northrop such a happy occasion. MICHAEL & MARGARET BARTMUS.

My sincere thanks, NRC, for the lovely flowers. ANGELA BRANNFORS.

For Sale or Trade

Fiat 1200, 1962 convt., $450 or trade for small wagon of equivalent value. 213-633-2990.

Children's Christmas Party Reservations Due Nov. 19

Reservation invitations for the annual NRC Children's Christmas Party, distributed with paychecks earlier this month, must be returned no later than Friday, Nov. 19.

NRC volunteers will process all invitations promptly and mail family reservations for one of two identical shows (at 1 p.m. and 4:30 p.m.) to be held Dec. 19 at the Shrine Auditorium directly to the homes of employees. Tickets should go out the first week in December.

Open to Northrop employees at Aircraft, Electronics and Corporate offices only, the big affair again promises to kickoff the holiday in grand style.

Entertainment will include two full-length color cartoons, the popular Beckers Performing Chimpanzees, a trick juggling and balancing act known as The Carlsons, plus added features. And Santa Claus has promised to be on hand to "talk business" with the young of all ages.

Gifts will be available for boys and girls through the ages of 12 years.

Staging such an event requires many volunteers from throughout Northrop facilities. Some work one show, others are on hand for both. Any employee wishing to help is asked to contact Personnel Activities for an assignment.

NRC Basketball Play Under Way

This month marks the beginning of play in the 1971-72 basketball season for the Northrop Recreation Club.

Electronics Division Commissioner Joseph Simpson said that all team managers should submit their player rosters to him no later than this Friday, Nov. 19

Interested employees can contact Mr. Simpson, ext. 280, Hawthorne, for further information.

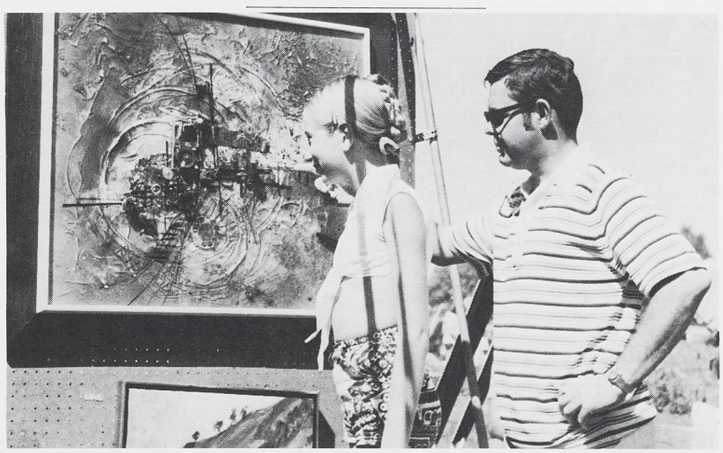
Navigation Department Employees Praised for Service to Community

A letter congratulating Navigation Department employees for their effort in establishing an Audio Listening Center at the Holly Park Library was received recently by Roy Kaufold, department manager.

William S. Geller, head librarian for the County of Los Angeles, wrote: "This is to report how proud and pleased I am with the gift of the children's education center . . . and how well it is serving the community. It has created much enthusiasm and is proving to be popular with the younger set."

Mr. Geller said that he has ordered additional cassettes to be purchased from library funds. He added that much can be learned about this new approach to reading and storytelling for children using the library.

The listening center, which consists of tape recorders, headsets and amplification equipment, was donated by employees with funds they raised during a recent clean-up campaign.



BILL GRAY, LEAD ARTIST in the Palos Verdes Graphics unit, explains background on one of his paintings to a visitor at last month's Palos Verdes Community Arts Festival — Art For Fun(d)s Sake. The show was termed a "huge success."

25-YEAR VETERANS receiving their Northrop service pins during October were Dave Philbrick, second from left, and Dick Paramore, second from right. General Manager Ross F. Miller, right, made the presentation. Looking on is Hal Janssen, director of Industrial Relations.

FORTY RECIPIENTS

Service Pins Presented

Douglas Weeks, a senior mechanical engineer in the Mechanical Development unit, Hawthorne, heads the list of Electronics Division employees qualifying this month for award of Northrop service pins.

Mr. Weeks, a 25-year Northrop veteran, joined the company in 1946, working as an engineer on an experimental program which eventually led to the development of the guidance system for the Snark missile.

Other employees receiving pins this month are:

Hawthorne

Twenty Years: Durward Buckey, James Jones, Russell Cully, Jack Grimes, Dorothy Wells and Rosemary Ream.

Fifteen Years: Donald Lizotte, Armand Grapkoski, Hector Castaneda and D. E. Mosher.

Ten years: Thelma Engstrand, Elberta Swearingen, Margaret Seitz, Leonard Tobias, Robert Veit, David Perez, Wilfred Kamrath and Ethel Wilson.

Five years: Elque Washington, Arthur Anderson, Lowell Dubberke, Robert Schweikert, Jr., Frank Forbath, Fred DeNuccio, Samuel LaRosa, Jr., Stanford Evans, Beverly Nelson, John Prohoroff and Chris Diehm.

Palos Verdes

Twenty years: Stewart Killian and E. C. Wittrock.

Fifteen years: Richard Miller and R. K. Runtzel.

Ten years: Irene Henriksen and Frank McCargar.

Five years: Teague Leiboff, Stanley Toma, Kenneth Heck and Richard DeWitt, Jr.

HOLIDAY

Electronics Division will suspend operations in observance of Thanksgiving Day, Thursday, Nov. 25.

Regular work shifts will resume Friday, Nov. 26.

SKIERS ANNOUNCE EUROPEAN TOUR

Members of the Northrop Recreation Ski Club have arranged a bargain priced trip to Europe as this season's major event, according to Dick Baggett, commissioner.

The site they have chosen for their annual overseas trek is the resort of Cortina D'Ampezzo in the Dollomite Mountains of Northern Italy.

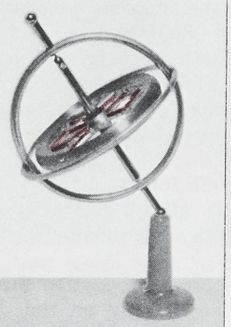
The two-week excursion, beginning Jan. 29, 1972, provides for a week of skiing with the club, plus a week free for touring and sightseeing.

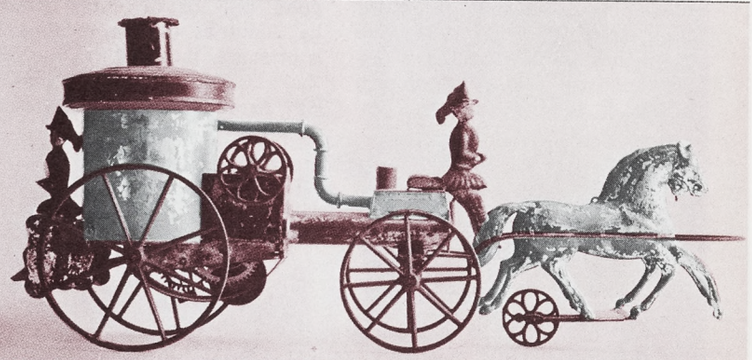
The total package price of $365 per person includes round trip jet flight from Los Angeles to Munich, transfer from the Munich Airport to Cortina, seven nights lodging in a first class hotel, meals for seven days, and a seven-day ski lift pass good for unlimited use of all 40 ski lifts.

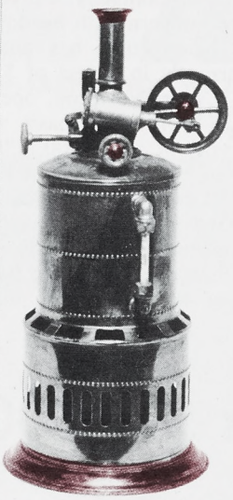
"After all of our skiers are accommodated, we plan to offer the round trip jet flight only, without the ski package, for a mere $250," Mr. Baggett said.

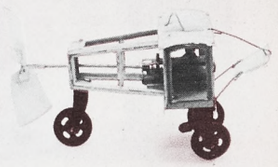
NORTHROP NEWS

Merry Christmas

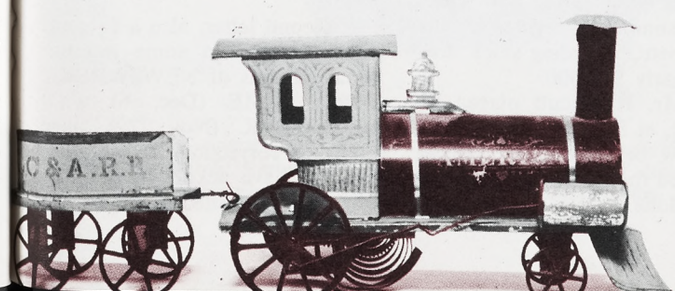








and a Happy New Year



President Jones Sees Upswing in Economy

Northrop President Thomas V. Jones expressed his confidence in the United States economy and said that Northrop has the resources to participate in the anticipated economic upswing.

Speaking before approximately 200 people at the company's annual shareholders meeting Dec. 14 at the Aircraft Division, Mr. Jones explained that although he doesn't see any substantial improvements in company sales until 1973, the coming year may bring with it a "pleasant surprise."

"The potential for growth is certainly there and I am very confident that we have the resources—financial, technical and human—to take maximum benefits from our opportunities," he said.

In a year when both sales and earnings suffered a decline, Mr. Jones pointed out that, except for 1970, sales for fiscal 1971 were the highest in the company's history and earnings were the fourth highest in the 32 years the company has been in business.

He cited two major conditions as the reasons for the decline: cutbacks in the production rate for 747 fuselages, and the reduced pace at which certain aircraft programs were scheduled for production.

Prospects Good

Mr. Jones emphasized, however, that the company has a broad variety of programs and products which can achieve growth when production schedules are stepped up.

Among those he talked about were the F-5E International Fighter Aircraft and the Air Force A-X—attack experimental—program.

"Even before production flight test and based only on the designs for the F-5E, we find that this new aircraft is attracting a good deal of favorable interest by countries outside of those it is primarily intended for," he said. ". . . we think that this interest will express itself in substantial sales above and beyond the basic program."

Mr. Jones explained to shareholders that Northrop is one of two finalists—along with Fairchild Industries — in the A-X program.

"We are giving this program a very high priority in our efforts because if we win and if the government goes ahead with the program, it could mean very considerable volume," he stated.

He added that Northrop's entry in the "fly before buy" program should be flying some time in April or May 1972 and that the Air Force flying competition should begin later that same year.

Another major aircraft program cited at the meeting by Mr. Jones was the company's P-530, a high-performance air superiority fighter designed for use by allied nations in the 1975-1990 time period.

"We have quoted a fixed price for the P-530 of $3 million per airplane in 1970 dollars," he said. "As in the case with a commercial airliner, the price includes the cost of designing and developing the airplane. There is no requirement that any government finance development. These costs will be recouped out of the sales of airplanes at the established price."

With a commercial approach to the P-530, sponsored by reliable and respected companies, po-

(See JONES, page 8)

HE ASKED AN INTERESTING QUESTION
Mr. and Mrs. E. L. Hunnicutt with President Thomas V. Jones, center.

Arrangements Made For The Acquisition of George Fuller Company

Northrop Corporation has completed arrangements to acquire the George A. Fuller Company, a leading building construction firm, for an undisclosed cash sum, Thomas V. Jones, Northrop president, has announced. No public financing is involved in the transaction.

The Fuller Company, a privately owned concern with headquarters in New York, has annual sales currently in excess of $150 million a year. Northrop, operating on a world-wide basis with annual sales of over $600 million is engaged principally in the business of aircraft, communications and electronics.

Noting that Northrop will provide both management and financial support in order for Fuller to maintain its position of leadership and to assure future growth, Mr. Jones announced the appointment of Robert W. Page as president and chief executive officer of the Fuller Company. William V. Lawson, president of Fuller since 1964, is resigning to take another key position in industry. Mr. Page has been a vice president of Rockresorts of New York City, a Rockefeller Family and Associates company.

Mr. Page has been with Rockresorts since 1966. Previously he was for six years with the Bechtel Corporation where he was in charge of its international real

(See FULLER, page 8)

SHAREHOLDER LEARNS

How $600 Could Grow to Over $17,000

By asking a single question, E. L. Hunnicutt, an original Northrop shareholder, demonstrated to those attending this week's annual shareholders meeting that $600 invested in Northrop stock 32 years ago now could have accumulated, with dividends and stock splits, aggregate value of more than $17,000.

Mr. Hunnicutt rose during the question-and-answer session to quote from a letter he had written to the company earlier:

"In 1939, I bought 100 shares of Northrop stock for $5, plus $1 brokerage fees, for a total of $600. I now have, through stock dividends and splits a total of 484 shares. In relation to the original investment of $600, exactly how many dollars have I been paid over the years?"

President Thomas V. Jones replied that Mr. Hunnicutt's original investment had drawn dividends totalling $8,278.42. At the current market value of $20 per share, his holdings are now worth approximately $9,000. Assuming all dividends were retained, the total investment, including stock dividends, would be worth nearly $18,000.

By comparison, had Mr. Hunnicutt placed his $600 in a savings account, at five per cent interest, his investment would now be worth only $3,000, which is less than one third the current value of his Northrop stock shares alone.

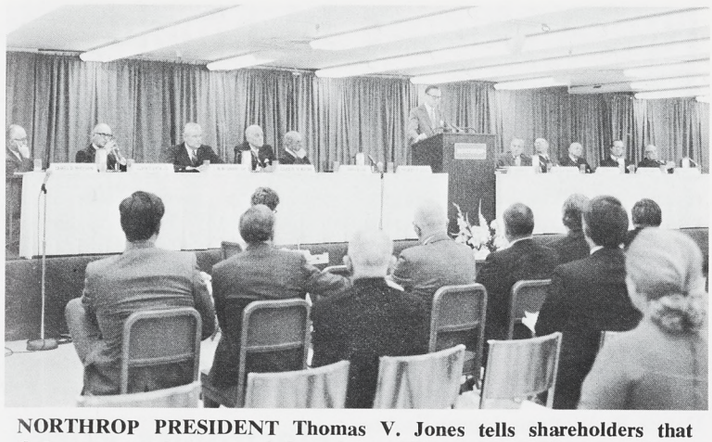
Critical Letters Shock Personnel

Many Northrop employees were shocked by a letter critical of the Shah of Iran and the 2,500th Iranian anniversary celebration which appeared in the Nov. 22 issue of TIME.

This letter, purportedly signed by a Page executive in Iran, was the work of an impostor or impostors.

A second letter, also a forgery, was published in some international editions of NEWSWEEK.

Both TIME (Dec. 6) and NEWSWEEK (Nov. 29) have published corrections of these letters and have acknowledged that they were published in error.

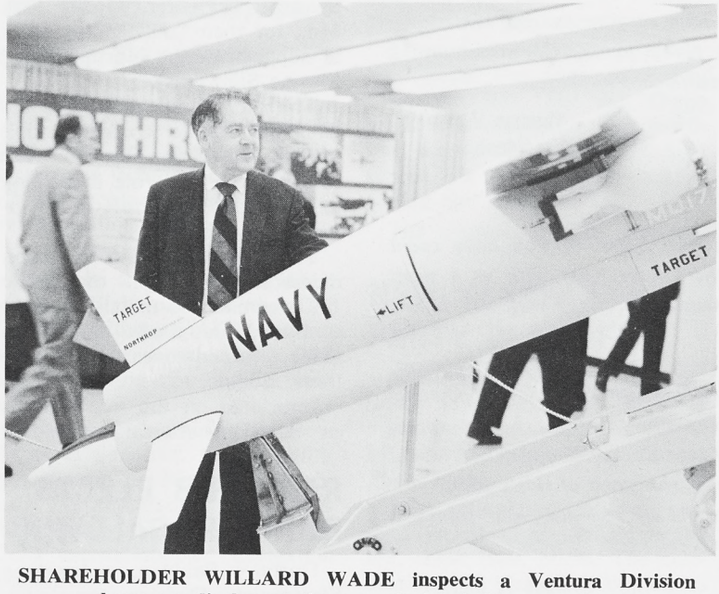


NORTHROP PRESIDENT Thomas V. Jones tells shareholders that their company is in sound financial condition and predicts a business turnaround in 1973.

HIGHLIGHTS
Annual Shareholders Meeting

MR. AND MRS. LYLE B. SCOTT, shareholders in Northrop for the past 12 years, are signed in by W. D. Wahl, left.

JAMES H. BUSH, with microphone, thanks Northrop for its excellent pension plan and the way the company takes care of its employees.



SHAREHOLDER WILLARD WADE inspects a Ventura Division drone on display at the annual shareholders meeting.
Photos by Dave Saldana

WELKO GASICH, general manager, Aircraft and Ventura Divisions, tries out DIGISPLAY exhibit with help from Dr. H. Q. North.

DIGISPLAY operation by Laura Martinez intrigues shareholders Mr. and Mrs. Harold Barbey. DIGISPLAY is a flat panel TV display that employs electron beams instead of a cathode ray tube.

MR. AND MRS. WILLIAM H. JUSTICE stop to view TISEO, Target Identification System Electro-Optical, photo display shown at the shareholders meeting.

Season's Greetings

To the Men and Women of Northrop:

The Holiday Season—with its bustle and spirit of celebration—also brings a time for reflection upon the accomplishments of the past year and upon the prospects for the future.

In 1971 Northrop advanced on many fronts. Each forward step required extra effort, ingenuity and cooperation. This determination, strength and willingness to do more when it is needed most is a Northrop tradition. It is a spirit I admire greatly and one that makes me proud of every man and woman of Northrop. And it fills me with confidence that the years ahead will be better for us all.

To each of you, and to each member of your family, Mrs. Jones and I extend our personal wishes for a joyous Christmas and a New Year of good fortune, good health and happiness.

Thomas V. Jones
President

To Electronics Division Personnel:

Once again we approach year's end. Some of you have spent many years with our company, others have been with us a short time. As for me, I've exchanged season greetings with my fellow Norcrafters 21 times.

The circumstances surrounding each season has been different. The business environment, company conditions, and our personal situations continually change — sometimes for the better, sometimes for the worse. But certain things do not change, nor would we want them to. I mean, specifically, the spirit of this season.

With that thought in mind, I extend to you and your family a very Merry Christmas and a Happy New Year.

Ross F. Miller
General Manager

BOB BISHOP, ADVANCED PROJECTS UNIT, turns over classified document he handcarried into Hawthorne facility to Alice Williams, of the Security office. Mrs. Williams reminds personnel that all classified material brought into the company must be immediately routed through the Security office for accountability purposes.

NASA Honors 14 Employees For Space Program Efforts

Fourteen Electronics Division employees have been selected to receive medallions from the National Aeronautics and Space Administration for their contributions to the Apollo space program.

They are Harold T. Bigelow, Russell B. Corbus, Clifton H. Davis, James M. Drevick, Richard L. Dunifer (posthumous), Daniel R. Winters, James E. Anderson and Howard A. Luhmann.

Also Patrick McCleary, Alice F. Carlson, Harvey C. Guiles, Harry E. Fralich, Bill McCann and Dale M. Dahlberg.

The employees are being recognized by NASA's Goddard Spaceflight Center, Green Belt, Md., for their "outstanding work in support of the Northrop-built Marine Star Tracker."

The star tracker is used to update the Apollo tracking ship's inertial navigation system. The ship plays a vital role in helping to place the spacecraft in its initial earth orbit.

The medallions, which commemorate the flight of Apollo 11, are made of metal from the command module and from items returned to earth from the lunar module.

Imprinted on the front side is an engraving showing Astronaut "Buzz" Aldrin emplacing the American Flag on the lunar surface. The reverse side carries testimony that metal in the coin came from the historic lunar flight vehicles.

The medallions are expected to be presented to the recipients sometime this month or the beginning of next month.

REC CLUB ELECTS DOROTHY BALDWIN

Dorothy Baldwin, a longtime Electronics Division employee, has been elected president of the Northrop Recreation Club for 1972.

Serving with her in the coming year will be Ed Sterbenz, vice president; Dick Reamer, treasurer; Marian Owens, secretary; and Frank McGinley, sergeant-at-arms.

Mrs. Baldwin has been active in the NRC for the past 11 years. In 1970, she completed her third term as secretary to the executive council. She also has held the position of Bowling Club commissioner, and is presently heading the division's Travel Club.

A 20-year Northrop veteran, Mrs. Baldwin is a Property budget analyst at the Western Avenue facility.

The new officers were elected at a special meeting of the division's NRC Employees' Council, held Nov. 13 at the Alondra Club.

Electronics Wins Nav-Trainer Pact

Electronics Division has received a $2,666,821 Air Force contract to provide airborne navigational computer systems for T-43A aircraft.

The T-43A is a military version of The Boeing Company's 737 jet transport, which has been chosen by the Air Force to replace the T-29 in its undergraduate navigator training system.

The training system will consist of 19 T-43s and 52 ground simulators. Northrop's computer system will be used to gather and process navigation data for use by students.

Under the contract, Electronics Division will provide 14 NDC-1060 computers, 132 computer control display panels and 121 interphase converters.

The firm fixed price contract was awarded by the Aeronautical Systems Division at Wright-Patterson AFB, Ohio.

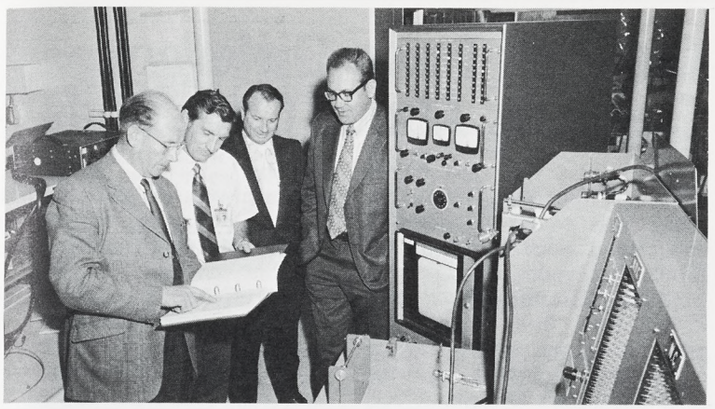
HOLIDAY SCHEDULE

The annual Northrop year-end holiday—one of the most anticipated times of the year—will begin Dec. 24 for Electronics Division personnel and continue through the holiday season for 10 straight days. Normal work shifts will resume Jan. 3.

Payroll will distribute three paychecks before the holiday begins, one Dec. 17 and two Dec. 23. The first paychecks of the new year will be distributed Jan. 7.

CHILDREN'S CHRISTMAS PARTY REMINDER

Employees who have not received their tickets to the annual NRC Children's Christmas Party should contact the Personnel Activities office, ext. 425, Hawthorne, or ext. 441, Palos Verdes.



TOM ANDERSON, senior test equipment engineer for Ferranti, Ltd., left, discusses checklist covering the initial arrival of ground support equipment for the Harrier Inertial Navigation and Attack System (INAS) with Norm Henry, chief of Quality Assurance, and John Bloodworth and John McIntyre of the Harrier program office. Mr. Anderson will be working at the Navigation Department for the next seven months, providing technical assistance for the installation and operation of the INAS test rig.

McGilligan Will Work With Marines Supporting AV8A Harrier Aircraft

George McGilligan, senior Field Services engineer in the Product Support subsection, has been assigned to the Marine Corps Air Station at Beaufort, S.C., in support of the AV8A Harrier aircraft.

Mr. McGilligan will work closely with the Marine Air Group's avionics officer in the repair and maintenance of the Harrier's FE-541 inertial navigation and attack system.

Northrop is the U.S. licensee of Ferranti, Ltd., Scotland, for the manufacture and repair of the FE-541 INAS. The company also has a contract from the U.S. Navy to establish a maintenance depot at Hawthorne for the servicing of these systems.

Mr. McGilligan is well known throughout the aerospace industry for his technical capability in solving problems related to inertial navigation systems.

C-5 Experience

He was aboard the initial avionics flight test of the C-5 Galaxy at Edwards AFB, and has accumulated more than 300 hours of flying time in the giant aircraft.

Prior to assuming his new duties at Beaufort, Mr. McGilligan served as Northrop's technical representative at Travis AFB, where he worked on the C-5's inertial-doppler navigation equipment.

OVER 300 EMPLOYEES RECEIVE CAREER TRAINING; MOST USED THEIR OWN TIME

More than 300 California-based Electronics Division employees have received some form of career training this year under the auspices of the Employee Relations and Training group.

According to Jud Morris, Personnel Planning and Development specialist, these employees participated in 26 courses and seminars and devoted 4,393 man-hours to training and management development activities.

"It is interesting to note that 86 per cent of the training conducted this year was accomplished by employees on their own time," Mr. Morris said. "This figure illustrates the interest division people have in furthering their skills through classroom instruction."

Many Courses

Courses available through the Employee Relations and Training group include: Effective Listening; Basic Supervision; Elementary Statistics and Problems; Techniques of Interviewing; Management, Secretarial and Creativity Seminars; and Principles of Managing.

Mr. Morris, who personally conducts the majority of these courses, said that he has high hopes, in 1972, of being able to offer employees an even broader range of instruction.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Employee's Son Playing Football With N. Y. Giants

The son of an Electronics Division assembler is slowly but surely gaining a reputation as a formidable ball carrier in the National Football League.

Charlie Evans, whose mother, Byrda, works in the Operations section at Palos Verdes, is playing fullback for the New York Giants.

Charlie, a rookie, has played in nearly half of the Giants' games this season. He had one of the best days of his long football career last month in the Giants' 35-17 victory over the San Diego Chargers.

He scored touchdowns on two one-yard runs and a nine-yard jaunt, rushed for 63 yards in 17 attempts and picked up another 69 yards on pass receptions.

"I must admit I'm surprised by how much I've been getting to carry the ball. The San Diego game was the most touchdowns I've scored since I was in high school. In one game then, I scored six," said Charlie.

His prowess on the gridiron, however, is no surprise to Giant quarterback Fran Tarkenton. Following the San Diego game, Tarkenton said: "Evans reminds me a lot of a young Bill Brown, who was with me with the (Minnesota) Vikings. He's a Brown type — and that's as high a compliment as you can give a fullback."

Charlie was selected by the Giants in the 14th round of last year's college draft. He played college football at the University of Southern California, and was an All-American choice at Gardena High School.

NEW YEAR'S EVE PARTY PLANNED

Electronics Division NRC officials have announced plans for a gala New Year's Eve Party Dec. 31, at the NRC Clubhouse in Plant Three.

Reservations, at $5 per person, include free refreshments, dip, chips, hats, horns. The celebration will run from 9 p.m. to 1 a.m.

Tickets are now on sale at Personnel Activities or from NRC commissioners.

Lunch-In Helps Needy Families

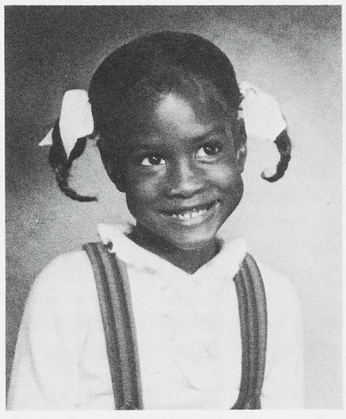
The Palos Verdes Lunch-In—one of the most popular in-house activities of the holiday season—has been termed a "complete success" by Jan Kmet, coordinator of the event.

The Lunch-In, which is designed to aid the less fortunate at Christmas time, was held Dec. 15 in Building Two. More than 200 Electronics Division employees were present.

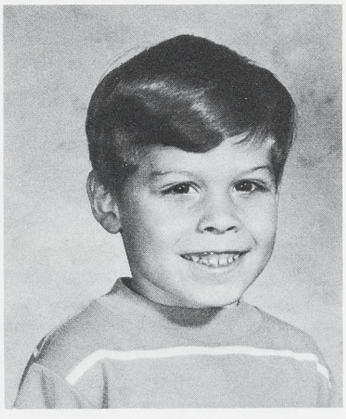
Each had a meal consisting of French baked ham, sour dough bread, home baked beans and cole slaw, and a Christmas dessert made of jello, fresh strawberries, pineapples, bananas, nuts and sour cream.

Since its inception eight years ago, the Lunch-In has raised close to $1,500 — all of which has been donated to underprivileged people through the Northrop Needy Family Program.

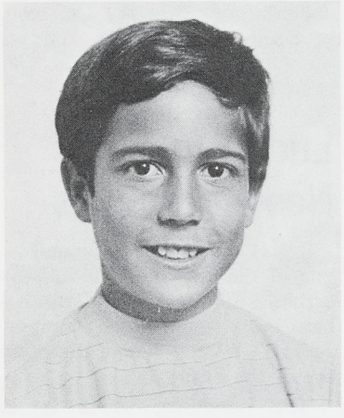
VOLLEYBALL COMPETITION AT THE PALOS VERDES facility is held every day at noontime behind Building Three. In this action shot, Jim Lang, left, spikes the ball toward Gill DiBenedetto. In the background are Ed Trost and John Ruffinio. Directly behind Charley Brewster on the right is referee Paul Meyer. Employees interested in competing during the lunch hour can contact Walt Goede, ext. 365, for details.



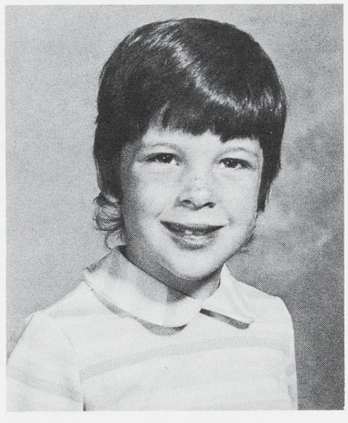
Sheri Nicole



Mark



Rick



Donna

Children Have Different Opinions About Christmas

In this period just before Christmas the very young are living in a wonderful world of anticipation. Each little mind has formed its opinion as to what it is all about. Northrop News, with a big assist from fathers and mothers, queried a cross section of youngsters to find out what Christmas means to them.

Sheri Nicole, 5, daughter of Paul Dunn of the Electronics Division, put the whole season into its proper perspective with: "It means Jesus' birthday."

Mark, 6, son of Frank Balaszi of the Ventura Division, quipped: "When Santa comes he only brings one toy. He can't make lots of toys for each person because there are too many children. I hope he brings me a train set." Mark added, however, that his mommy and daddy provide him with many other toys.

Rick, 11, son of Al Tiberio of the Aircraft Division, brought up another angle with: "Christmas means two weeks out of school and having a great Christmas morning."

Donna, 7, daughter of the Electro-Mechanical Division's Chuck Dempsey, added these thoughts: "Oh boy! Fun! You get a week off from school for vacation. People give you presents and you give them some. You get to go to the store and get your picture taken with Santa. We get to put up the same Christmas tree every year because it's a little fake one and we make decorations at school."

NORTHROP MEN GUIDE GRIDDERS

Two Hawthorne Junior All-American Football teams in the PeeWee Division have relied on Northrop talents in gaining championships.

In addition to the play of Northrop sons, the Huskies of the Pacific Coast Division were coached by Northrop's Terry Birdsall who was assisted by Dan Rich, Jim Rasnick, Mike Henson, Jim Brenton and Harry Darnell.

The Giants, winners of the Rocky Mountain Division, were coached by Northrop's Dale Hahbeck with Bill Green, Deb Jones, Fred Hynes and Ted Johnson as assistant coaches.

TAX CHANGES

The base for Social Security deductions goes up from $7,800 to $9,000 in 1972 with Northrop paychecks to be distributed Jan. 7 reflecting the change.

Northrop personnel earning the $9,000 base, or more, have been paying $405.60 annually. Beginning in 1972 they will pay $468. Northrop matches the amount paid by each employee.

FUN IS HIS WHEN

John Burke Doubles As 'Strolling Santa'

"Christmas may be the biggest day of the year to children, but it is Santa Claus who has the most fun."

This is John Burke, Electro-Mechanical Division Security office, speaking. While John isn't Santa, he has stood in for the North Pole toy maker enough to know how the old boy feels.

While John has acted as Santa's stand-in at division parties and at schools, his major activity is as a strolling Santa, wandering around at Christmas like the choraliers who go from house to house.

His adventures last year at Rancho Cardova where he was visiting are typical of his activities. In strolling in costume through the area he stopped at all houses whether he knew the owners or not. "You're welcome everywhere," he reports. "Nobody turns Santa away."

One time a little girl demanded to know where the reindeer were. "I hope they'll be along soon," John replied. "And that was no lie for I did hope."

When he left, he stomped his feet hard on the walk, shook some bells and shouted, "Ho! Ho! Ho!" and beat a hasty retreat before she could look out the window and be disillusioned by the sight of Santa walking.

He recalls another house where the mother told him her daughter and the neighborhood children had decided that Santa was a myth, but when she called the child, the little girl took one look at John in his Santa suit and fled, crying, "If I don't get to bed, he won't leave any presents!"

Her parents took a picture of John and the child took the Polaroid shot around the next day to show her friends that they were wrong. There really was a Santa after all.

On another occasion he visited a school where the children were convinced that he was their janitor who had a similar build. He let them think so, but when he got ready to leave he stuck his head back in the door to say goodby and had with him the man they thought was behind the Santa face. "I left them with their mouths open, wondering who I really was," John said.

John got into the strolling Santa hobby twenty years ago while with the U.S. Navy in Japan. On Christmas day in 1951 he and two other sailors bought $70 worth of candy at the Ship's Store and passed it out to children on the streets of Sasebo.

"As I recall," he said, "that was the wettest Christmas day in the town's history. We got soaked, but the children's expressions kept our spirits from getting damp. That's when I first learned that the person who has the most fun at Christmas must be old Santa himself."

JOHN BURKE HEARS FAMILY WISHES
Daughters Pam, Cindy, Sally and Lisa talk Christmas with Dad.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Gran Prix, 1970, fully equipped, $2,850. 213-545-6946.

Chevrolet, 1965 Impala SS sport, 396 turbo convt., $725. 213-675-6081.

Corvette, 1964, new 411 posi., eng. just r/blt., A/F radio & remov. top, 4-spd., $1,000. 213-676-3914.

Barracuda, 1970, 2-dr., h/t, 440-6-pak, auto. trans., r/h, new tires, mag whls., $2,300. 213-635-4696.

Cadillac, 1967 CDV, t&t steering, full power, a/c, 63,000 act. miles, $2,750. 213-377-6458.

Toyota, 1969 Corona Deluxe, low mileage, $1,600. 213-374-6445.

Ford, 1961, Wagon, $125. 213-644-0968.

Sunbeam Alpine roadster, remov. h/top, AM/FM radio, wooden dash, wire whls., $550. 213-325-6348.

Pontiac, 1968 Lemans, V-8, auto. trans., p/s, a/c, new tires, $1,250. 213-365-7338.

Chevrolet Pickup, 1956, r/blt. eng., $375. 213-378-3736.

Cadillac, 1968 El Dorado, 42,000 mi., 5 new tires, FM stereo, fully equipped, $3,795. 213-324-8190.

Mustang, 1965, V-8, a/c, p/s, auto. trans., new tires, new batt., $950. 714-993-1917.

Plymouth, 1970 Road Runner, r/h, air grabber, 22,000 mi., $2,150. 714-839-8833.

Cadillac, 1962, 4-dr., full power, air, w/Frantz oil cleaner, gold paint, $400. 714-523-5389.

Ford, 1962 Galaxie 500, r/h, p/s, p/b, new tires, $300. 213-679-6108.

Metropolitan, 1959, h/top, $125. 213-862-8783.

Rambler, 1959 American, auto. trans., 57,000 mi., $225. 213-833-5515.

Volkswagen, 1965, orig. paint, low mi., custom uphol., radio, new brakes, $695. 714-633-5826.

Fiat, 1969, 124 Spider, mag. whls., det. h/top, 33,000 miles. $2,200. 213-676-7554.

Renault, 1963 R-8, radio, 4-whl. d/brakes, $275. 213-831-9589.

Ford, L.T.D. 1967, 2-dr., air, speed cont., 428 C.I.D., 47,000 miles, $1,500. 213-329-3476.

Chevrolet, 1962 Impala, p/s, p/b, r/h, $250. 213-674-8289.

GMC, 1967 ½-ton pick-up, 63,000 mi., 292 eng., 4 spd., new tires, brakes, shocks, $995. 213-347-4196.

Cadillac, 1955, $200. 213-371-2531.

Volkswagen bus, 9-pass., $1,750. 805-527-5636.

Riviera, 1968, 61,000 mi., min. bid $1,645. Credit Union, ext. 1117.

Fiat, 1961, 1200 conv., $395. 213-633-2990.

Miscellaneous For Sale

Chrome Wheels, 13", $10 ea. 213-375-6397.

TV Antenna, new VHF-FM, Winegard CW-46, $35. 213-631-3000.

Speakers, 2, 12" Electro-Voice, walnut fin. encl., $150. 213-370-9124.

Accordion, 120 bass, 7 keyboard switches, 2 bass switches, $150. 213-326-1856.

Jungle Gym, pre-school, wooden dowel climbing cubes, $10. 213-676-3050.

Luggage, new, men's & women's, 3 piece matched sets, leather, hand made in Italy, $250 per set. 213-372-1355.

Transmitter, Johnson pacemaker, SSB-AM-CW, 10-80 meters, $100. 714-968-4992.

Electric Blanket, double bed, dual controls, $7. 213-327-4585.

End Tables, 2 heavy maple, $15 ea. 213-671-1518.

Accordion, Baleorica, 120 bass, $250. 805-483-5644.

Pups, Basset, 6 wks. old, AKC, pedigree, champion sired, shots, $75 up. 213-377-2052.

Radio Transceiver, VHF-FM, console, 50 watts, G.E., w/remote control, $100. 213-322-6655.

Sewing Machine, Singer, w/full set cams, $160. 213-370-1069.

Couch, three piece sectional, w/ottoman, 4 matching end tables, 2 club chairs, dining table w/6 uphl. chairs, tea cart, breakfast table w/4 chairs, $400. 213-323-4329.

Typewriter, electric SMC, $80. 213-293-5888.

Miscellaneous For Sale

Record Player, Show N Tell, 16 picture records, 4-spd. w/11" diag. viewing screen, $15. 213-327-2279.

Roller Skates, ladies, white, rink, size 8, $6.50. 213-545-1631.

Windows, 8, wood, 24" x 36", $2 ea. 213-379-4517.

Tires, 2, snow & mud cleated, w/wheels, size H-70-14, $40. 213-823-8694.

Pool, Dough Boy, 18' x 4', filter, vacuum, acc., $200. 213-899-1015.

Skis, Kneissl Red Star, 210 cm, solomon slip-in bindings, $50. 213-372-4141.

Movie Camera, Bolex, model D8L, 8 mm, pistol grip & carrying case, w/light bar, $50. 213-428-3529.

Acreage, 160 acres, 40 acre parcels, near Santa Maria, $395 per acre. 213-370-3821.

Recliner Chair, aqua, naugahyde, $75. 213-329-2981.

Piano, Fischer, console w/bench, $350. 213-378-2790.

Dining Table, birch, 38" x 65", 2 fillers & 6 matching chairs, $99. 213-396-5837.

Sewing Machine, 1971 mod., domestic, port., $95. 213-863-3900.

Pony, male, brown with flaxen mane & tail, $75. 714-527-5212.

Boat, 27' Chris Craft, flying bridge cabin cruiser, fully equipped, s/s radio, RDF, bow rail & swim step, $4,950. 213-329-3900.

Mini Bike, Rupp, Mac 90, 9 h.p., $125. 213-542-2638.

House, 3-bdrm., 1¾ baths, patio, liv. rm., den, $33,000. 213-830-1216.

English Ironstone, comp. service for 8, platter & veg. dish, dishwasher & oven proof, all white, $15. 213-943-8187.

Home, corner, 2-story, 4-bdrm., 2 baths, cpts., dps., bltins, across from new Los Cerritos shopping center, $31,900. 213-860-3022.

Travel Trailer, 1968, 16½', sleeps 8, stove w/oven, ice box & dbl. sink, $1,250. 213-671-9231.

Travel Trailer, 1967 Norris, 17', self-contained, pressurized water w/heater, sleeps 6, $1,750. 213-378-7846.

Motorcycle, 1964 Honda Trail, 90 cc, $150. 714-528-8582.

Mini Bike, Cat 400 Deluxe, 4 h.p., springs & shocks susp., $85. 213-431-9620.

Typewriter, Underwood electric, 16" carriage, $115. 213-375-5760.

Watersoftener, large, Servisoft, $85. 213-379-3300.

Pool Table & equipment, 8', $175. 213-679-7746.

Tape Recorder, portable, Craig 212, 3" reel to reel, auto. level control, batt. or AC, $20. 213-392-3147.

Refrigerator, gas, 3½ cu. ft., $35. 213-322-2364.

Crib, adj., w/mattress, hi-chair, booster seat, misc. child's items, $47.50. 213-376-4831.

Table Lamps, 49", 3-way, brown & beige, $10. 213-376-2725.

Horse, mare, 9 yrs. old, part thorobred, $300. 213-378-0501.

Volkswagen Parts, w/complete kit, $90. 805-482-3893.

Sewing Machine, industrial, Willcox & Gibbs, w/commercial table, $100. 213-374-2915.

Racing Catamaran, 14' Hobie Cat, trailer, many extras, $950. 213-397-5448.

Shotgun, 12 ga., Remington #1100, 3" magnum, used once, $120. 213-635-6475.

Motorcycle, 1969 Honda 50 racer, w/long straight pipe, wide handle bars, w/Honda 90 carb., $100. 213-274-0589.

Couch, 6' 6", wing back, wood trim, nylon, lt./brn. w/rose, 3 rever. cushions, $80. 213-671-6692.

Motorcycle, 1971 Honda 70, $190. 213-831-3737.

Chairs, 2, quilted, olive green, $20 ea. 213-532-6662.

Trousers, men's sizes, 38" & 40" waist, 28" & 29" length, $5 pr. 213-675-2772.

Mink Coat, ¾ length, brown, never worn, $395. 213-347-4599.

Acreage, 5 acres, Antelope Valley, view, some paved frontage, $6,000, $400 dn. 213-378-1026.

Trail Bike, Honda 90, less than 500 mi., $225. 213-324-7637.

Bicycle, 10 spd., American Eagle, $55. 714-879-2569.

Piano, upright, recently tuned, re-finished, $185. 213-696-7529.

Flatware, stainless, w/ebony handles, 59 pieces, $15. 213-644-0003.

Refrigerator, 12 cu. ft., $65. 213-542-2353.

CARGO-CARRYING capacity of the new Boeing 747F Freighter is graphically illustrated by a line of freight 320 feet long. Cargo represents 200,000 pounds and 17,000 cubic feet which can be carried across the Atlantic in a single trip. Set for delivery in March 1972, new 747F will go into service a month later with Lufthansa German Airlines.

Miscellaneous For Sale

Electric Organ, Lowrey, two manuals, $400. 213-346-3751.

Sportfisher, 23' uniflite, h/top, 225 h.p. Chrys. inbd., fr. watercooled, extras, $11,500. 213-271-3484.

Baby Furniture, $35. 213-635-7843.

Boat Trailer, American, for 16 to 18 ft. boat, $100. 213-941-3804.

Motorcycle, 1964 Suzuki, 250 cc, mtr. dismantled, $35. 213-644-9457.

Wheel Chair and walker, Everest-Jenning deluxe, $175. 213-758-9153.

Stove, O'Keefe & Merritt, gas, 4-burner, top grill, white, $50. 213-423-9358.

Sheltie Pup, f., 5½ mos., 13" high, AKC pedigree, all shots, $50. 213-374-6727.

Cabin Cruiser, 16-ft. Harcraft, fiberglass/wood, 30 h.p. eng., elect. start/pump, anchor, extras, tandem tilt trailer, $595. 213-323-7177.

Jacket, sable mink, $400. 213-396-5428.

Table, sabre saw, Sears, 15 x 17 x 9 in., $3. 213-671-1617.

Bench Saw, 10-in. Craftsman, 1 h.p. mtr., stand, exten. table, guard, ex. blades, DADO set, $150. 213-378-1771.

Stove, Gaffers & Sattler, 4-burners, $49. 213-324-9491.

Luggage, Lady Baltimore, $10. 213-672-3460.

Phonograph, antique Brunswick, needs spring, $30. 213-379-5652.

Stereo, Harmon-Kardon, power amp, 120 watts, pre amp, FM tuner, walnut cabinets, $300. 714-894-6365.

Drumset, professional, 5-pc. with 4 cymbals, $250. 213-375-9485.

Wanted to Buy

Bicycle, 10-spd., boys, will repair. 213-375-8460.

Exercise Bicycle, stationary, Schwinn. 213-377-4623.

Vacuum Cleaner, under $20. 213-545-2577.

Freezer, chest type, 10 to 18 cu. ft. 213-833-2301.

Dinette Set, 4 or 6 chairs. 213-323-0474.

Pocket Watches, old, American, watch repair equip. 805-482-0690.

Fill Dirt. 213-834-3290.

Piano, upright, with or without bench. 213-671-1102.

Free (To Be Given Away)

Rabbit, adult, female. 213-374-8201.

Rentals Offered

Apt, 1-bdrm., unfurn., range, refrig., cpts., dps., a/c, car port, storage locker, Westchester area, adults only, no pets, no lease, by appointment only, $150 mo. 213-756-5157.

Apt, 3-bdrm., 2 baths, 3 blks. to King Harbor, Redondo Beach, 1 mo. free rent, cpts., dps., bltins, close to shopping, schools & bus, $215 mo. 213-379-6549.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

Cabin, new 2-bdrm., Big Bear City, $40 wk/end. 213-320-6486.

Rentals Offered

Duplex, 2-bdrm., unfurn., w/w cpts., enc. patio, fenced yd., near schools, 2 mi. from Northrop, no pets, small child, $155 mo. 213-674-0880.

House, 2-bdrm., h/wood flrs., dps., 5 min. to Northrop, adults, no pets, trash, water, lawn paid, $160 mo. 213-677-8543.

Apt, lge. 2-bdrm., ½ blk to ocean, refrig. & stove, Hermosa Beach, $185 mo. 213-379-4471.

Apt, 1-bdrm., El Segundo, furn., $140 mo., $120 mo. unfurn. 213-757-9321.

Cabin, Rim Forest, near Arrowhead, Running Springs, sleeps six, fireplace, $30 wk/end, $90 wk. 213-370-7105.

Cabin, 2-bdrm., sleeps 8, Big Bear-Moonridge area, f/place, TV, bltin AM-FM radio, lge. kitchen, $90 wk., $40 w/end. 213-541-3000.

Personals

Thank you for the kindness & sympathy expressed at my father's passing. WELKO E. GASICH.

My sincere thanks, NRC, for the lovely flowers. NANCY EASTERLY.

My heartfelt thanks to all my friends at Northrop for the cards, letters & encouragement during my recent illness. BETTY KILTZ.

I wish to thank all our friends for the cards & flowers received during my husband's recent illness. SARANN KRUSE.

I wish to thank all my friends for their gifts & cards during my recent illness. RUTH FERNANDEZ.

My whole hearted thanks for your help & warmth during my bereavement, upon the passing of my father. RHODA GIVENS.

I wish to thank my many friends & fellow workers for the cards & calls received during my recent illness. LA RUE GUYER.

Thank you for our wonderful retirement party & for your friendship over the years, our greatest gift of all. ADELAIDE AND ROBBIE ROBINSON.

Ride Wanted, 8 a.m.-4:42 p.m., crn. Spencer St., Hawthorne Blvd., Torrance, Aircraft ext. 1188.

Ride Wanted, Imperial Hwy., Paramount Blvd., Downey, 8 a.m.-4:42 p.m. Aircraft ext. 1305.

I appreciate, more than words can say, your acts of kindness during the hospitalization and death of my husband, Ira Swaffar. RUTH N. SWAFFAR.

I would like to express my sincere thanks to my friends who helped me over the first and biggest hurdle after my recent surgery. PETER SHRAMKO.

Information sought as to whereabouts of Bulova watch movement lost Nov. 12 following a motorcycle-auto accident at 139th St. and Prairie that took life of Bill McGill. Virginia McGill, ext. 1006, Aircraft.

NORTHROP NEWS
Vol. 29 **No. 19**

Published monthly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

AMONG THE FIRST NORTHROP employees to receive increased benefits under the revised Northrop Patent Award Plan were members of the Corporate Laboratories Laser Systems Laboratory. Receiving their awards from Dr. Gerard Hasserjian, director, right, are Ronald G. Eguchi, Kay C. Crill, Dr. Michael M. Mann, Dr. William B. Lacina, Donald D. Diem and Dr. Mani L. Bhaumik, from left.

JONES—Prospects for Future Look Promising

(Continued from page 2)

tential customers know they can make a commitment with full confidence, Mr. Jones noted.

In areas of business other than aircraft, such as communications and electronics, the company is moving forward at a steady pace, Mr. Jones said.

He mentioned the activities of Page Communications Engineers in Iran, where it is leading an international consortium that is building a nationwide telephone, telegraph, television and data communications network; and the activities of the Hallicrafters Company in producing electronics countermeasures equipment.

In concluding his remarks, Mr. Jones noted that "the life of a corporation like Northrop does not consist only of sales and earnings, of manufacturing and selling.

"There is a human side to it that is very important and I want to say that if in these months we are going through fairly difficult times, our people have responded to them wonderfully.

"The challenge has certainly brought out the best in them. More than that, we have stimulated a companywide program of individual participation in community activities so that we are in a position to feel that, on the whole, Northrop people are shouldering their share of civic responsibilities in the communities in which they live and the nation.

"I think this is very important in these times and we are pleased at the extent of activity our people represent."

FULLER—A Top Construction Firm

(Continued from page 2)

estate development division. Prior to that he was with Texas Instruments in charge of design, construction and management of new facilities.

"Acquiring Fuller expands Northrop's commercial business," Mr. Jones said. "The acquisition also enables us to extend our work in the areas of environmental control and in the area of urban development through construction of hospitals, health care centers and planned communities In addition, Fuller will make available to us certain expertise in the construction field for the phases of Northrop's operations that involve construction including a construction management team," Mr. Jones pointed out.

"The Fuller Company, founded in 1882, has an outstanding and respected record in the construction field. Although it has experienced some severe losses on certain contracts in the past few years, we are convinced the basic strength of the company remains," Mr. Jones added.

Currently, the company holds construction and construction management contracts on a diverse list of projects.

Since its founding in the wake of the Civil War reconstruction period, Fuller has been involved with a long list of historic buildings including the Lincoln Memorial, the U.S. Supreme Court and the National Cathedral in Washington, work on which started in 1904 and is now in its 68th year, as well as New York's Pennsylvania Station, Flatiron Building and the Plaza Hotel.

More recent accomplishments have included the Seagrams, Union Carbide, Time/Life, Lever House, and United Nations buildings in New York, plus the New York Coliseum and the General Motors building that was erected on the site of New York's old Savoy-Plaza Hotel, originally built by Fuller in 1907.

Although primarily an eastern corporation, in the west, Fuller has constructed the Federal Building, Travelers Insurance building, Marineland and the Century Plaza Hotel in Los Angeles; the Bank of America headquarters, San Francisco; and the Hotel Plaza Internacional, Acapulco, Mexico.

Fuller headquarters are at 596 Madison Ave., New York City.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Revision of Patent Award Plan Will Help Inventors

Increased patent award payments coupled with the prospect of earning additional cash through special awards make the Northrop Patent Award Plan revised July 31, 1970, more attractive than ever before for Northrop inventors.

An inventor with an invention deemed valuable enough to warrant filing a patent application now earns $100. The old rate was $50. And should that application lead to an issued patent, the inventor receives an additional $300. Before he would have earned $50.

In addition, special awards may be paid to those whose inventions have been licensed to others and produce royalty income for Northrop; been outstanding and have contributed significantly to the success of the company; been sold by Northrop for a substantial consideration. Special awards are a fairly recent addition to the plan.

Aircraft Division activities associated with patents are administered by a special committee chaired by Jim Crawford and comprised of Barny Gaiennie, Mel Shorr, J. P. Taylor and Willard Graham.

Mr. Crawford may be reached at ext. 1982 for information.

Savings Plans to Follow New Fiscal Year in 1972

The change of the Northrop fiscal year to the calendar year, effective Jan. 1, 1972, will bring a change in the dates when employees may apply to enter, or to change their contribution to the Northrop Savings Plan, Don Lutz, Corporate director of Retirement and Savings Plans, has announced.

In the past, applications to start or change contributions were to be made before the first day of August, November, February or May. With the new fiscal year, applications must be made before the first day of January, April, July or October.

Cover Artist

ERWIN "STEINIE" STEINMEYER, an illustrator at the Electronics Division, created the cover for this year's special Christmas edition. The old toys shown on the cover are from the private collection of Mr. Steinmeyer and a friend of his, both of whom are avid antique toy collectors. Mr. Steinmeyer joined Northrop in 1953. Prior to that he worked as a commercial artist in the Hollywood Division of Foote, Cone and Belding, a well-known advertising agency.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 1 | January 1972

HELPING OTHERS AT CHRISTMAS TIME
From left, Marcella Branch, Gail Warren, Ruth Tomlin and Eva Deschene.

Publications Section Aids Navajo Indian Reservation

One of the many departments within the Electronics Division to lend a helping hand to the less fortunate at Christmas time was the Publications and Proposals unit in Hawthorne.

Members of the unit collected and shipped more than 400 pounds of warm clothing and toys to the Navajo Indian Reservation at Chinle, Ariz.

The project was initiated by Supervisor Don Mealy and coordinated by Eva Deschene, who lived on the reservation before coming to work at Northrop six months ago. Other boosters of the project included Gail Warren, Marcella Branch, Ruth Tomlin and Don Devlin.

"We received helping hands from the Navajo Freight Lines, who delivered the goods to Chinle, and the Catholic Mission at the Reservation, who took responsibility for distributing the clothing," said Mr. Mealy.

Mrs. Deschene, upon her return to work after visiting with relatives on the Reservation over the yearend holiday, said that her people "were most happy with the donation from Northrop."

MILLER RE-ELECTED

Ross F. Miller, general manager, has been re-elected president of the Palos Verdes Chamber of Commerce. He has been associated with the Chamber since 1969, serving as a member of the board of directors and chairman of the Plans and Policy committee.

Roy Kaufold Recuperating at Home; Karl McCready Is Acting Manager

Roy Kaufold, vice president and manager of the Navigation Department, who suffered a heart attack Dec. 11, 1971, has been discharged from the Little Company of Mary Hospital and is recuperating in his home on the Palos Verdes Peninsula.

During Mr. Kaufold's absence, Karl McCready, director of Programs, will serve as acting manager, General Manager Ross F. Miller announced.

"Mr. McCready is to provide the management leadership required on a day-by-day basis necessary for the Navigation Department to continue to aggressively pursue its business opportunities and effectively discharge its responsibilities on current programs," Mr. Miller said.

Mr. Kaufold is expected to return March 1.

Electronics Receives P-3C Omega Contract

Electronics Division has received a $2.8 million contract to provide Airborne Omega receiver-converters for U.S. Navy P-3C aircraft.

The contract, which calls for the delivery of 95 units, was awarded by the U.S. Naval Air Systems Command, Washington, D.C.

The P-3C, which is the first of its series to carry advanced electronic sensors and an onboard central processor, is the backbone of the U.S. Navy's land-based anti-submarine-warfare aircraft.

The receiver-converter unit is the latest addition to Northrop's family of Airborne Omega navigation equipment and will provide P-3C aircraft with navigational accuracies of approximately one mile.

Along with each receiver-converter, Northrop also will provide its own Omega Loop Antenna (NOLA II) and supporting documentation.

"This is a very significant contract to those of us in the Navigation Department," said Mike Turney, director of Business Development. "It marks the first time we have received a go-ahead for full scale production on any of our Airborne Omega equipment."

Electronics Division initiated in-house studies on Airborne Omega in late 1966. In the spring of 1968, Northrop received a developmental contract from the U.S. Navy and, within 18 months, was recording accuracy rates of less than one mile.

Omega is an all-weather, day and night radio navigation system, which will provide worldwide coverage when fully implemented in 1973.

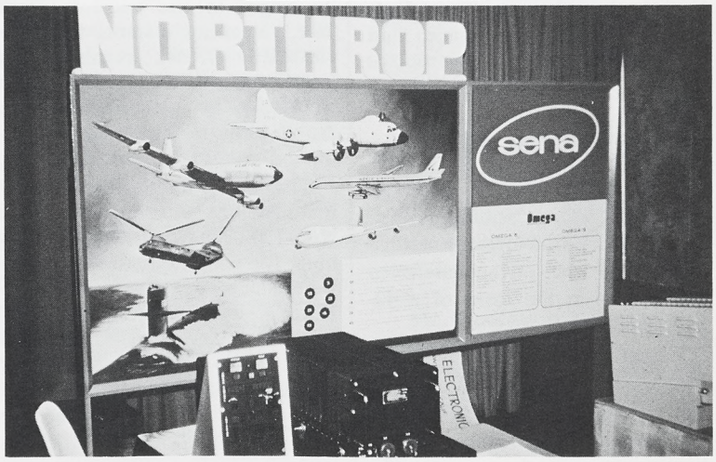
DONORS EXCEED BLOODMOBILE QUOTA

Volunteer blood donors from all Northrop facilities in the Hawthorne complex swung into the holiday spirit early last month by exceeding an advanced quota established for a bloodmobile visit.

The quota called for 278 pints for the day. Between 9:30 a.m. and 2:30 p.m. some 335 would-be donors turned out. By the end of the day 296 pints were collected to boost Northrop and individual credits with the American Red Cross.

APOLLO 15 PHOTOS

Orders for color slides of the recent Apollo 15 moon mission are now being accepted by Personnel Activities. Also, orders are being accepted for color photographs of the historic Apollo 11 mission. Further information can be obtained by calling Gail Wise, ext. 425, Hawthorne.



ELECTRONICS DIVISION Omega exhibit at Institute of Navigation Symposium Nov. 9-11, 1971, drew more than 350 visitors, including representatives from the military services and all the major airlines.

Northrop Seeks Pay Board Approval of Wage Increase

Northrop Corporation applied to the Federal Pay Board on Friday, Jan. 7, in Washington, D.C. for approval to increase the wages of its hourly employees at three Southern California divisions to levels that will be equal to those that will eventually be approved for the aerospace industry.

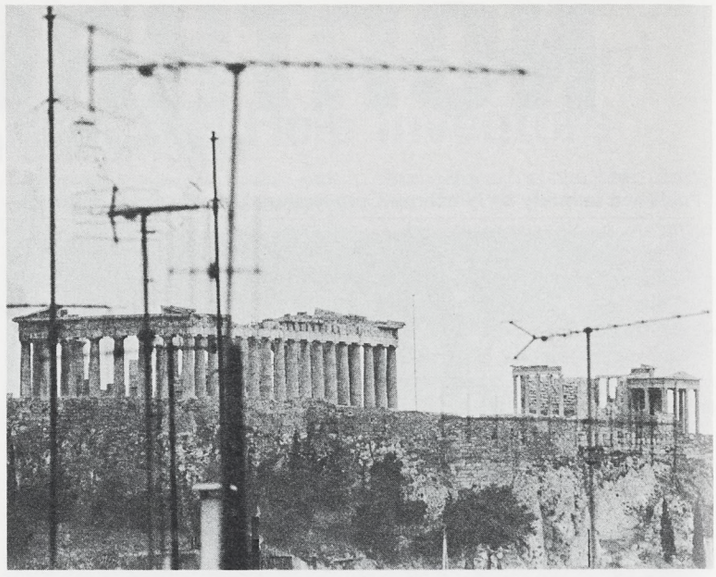
Approximately 2,500 employees in the Aircraft, Electronics, and Electro-Mechanical Divisions and Corporate office, were included in the application for increases.

Not affected by the application are Northrop employees at Newbury Park who are represented by a union.

The Federal Pay Board did not act on the company's application, deferring action until guidelines for all West Coast aerospace companies are established.

Frank Smith, Corporate director of Industrial Relations, stated that the delay by the Pay Board would mean that hourly general increases announced on Dec. 16, 1971, would not appear on paychecks issued Jan. 14, but he was optimistic that a decision would be forthcoming in the near future which would allow a general increase retroactive to Jan. 1, 1972.

Mr. Smith stressed that the Pay Board's action would not affect normal January reviews for salaried personnel as these reviews are not subject to prior Pay Board approval.



TELEVISION ANTENNAS FRONT GREEK RUINS
Northrop is helping bring TV to residents of all of Greece.

Subcommittee Works for Safety

Creation of a new Safety Subcommittee of Northrop's Interdivisional Industrial Relations Committee has been announced by Frank Smith, Corporate director of Industrial Relations.

Mr. Smith indicated the new subcommittee provides Northrop with a broad base for reviewing and eliminating the potential for work related injuries and illnesses. It will strive to help preserve Northrop's outstanding reputation for providing safe work places and operating procedures.

Al Van Der Most, Electro-Mechanical Division, is the subcommittee chairman. Members include Paul Crews, Aircraft; John Felder, Corporate Laboratories; Harry Clark and Joe Rahiya, Electronics; Frank Lund, Ventura; and Dale Albee, Northrop Architectural Systems. Dr. Richard Krebsbach, Aircraft, Tom Duffield, Corporate Insurance, and Bill Waysman, assistant Corporate counsel, are ex-officio members.

NORTHROP YEARS

Northrop Personnel Activities outlets continue to offer a pictorial history of Northrop contributions to the advancement of aeronautics in the form of a 42-page booklet.

Called "Flying Through the Years," the booklet includes 19 full color photographs of historic Northrop aircraft, plus descriptive texts on each aircraft. The price is just $1 per book.

Northrop Subsidiary Installing Modern Television Network for All of Greece

(Editor's Note: Les Daly, Corporate director of Public Affairs in Europe, the Middle East and Africa, wrote the following article. We felt employees would find in it an interesting report on how Northrop is helping bring something new to an ancient corner of the world.)

If you've ever thought of sailing off to a Greek island "to get away from it all," forget it; "all"—spelled TV—is coming to the Greek islands, too.

By the end of this year, one of the most modern television networks in Europe will be in operation here, reaching into nearly every Greek home from the shadow of the Acropolis to the hundreds of sunny islands scattered all across the Aegean Sea.

Although the very word owes its origin to the ancient Greek 'tele,' meaning distant, the individualistic Greeks are almost the last Europeans to succumb to the worldwide invasion of television. Now, only isolated Albania remains without television.

The elaborate network, which includes FM broadcasting and a global shortwave system, is being built for the National Radio and Television Corporation by Page-Europa, an Italian subsidiary of Northrop Corporation, under a $12.5 million, two-year contract. Company officials say the ambitious project is one of the few such programs in the world in which an entire system is being installed at once, rather than built up gradually over a number of years.

Center of the network is, of course, Athens, the political, economic and cultural capital of the country where one in every five Greeks lives and works. At the same time, some 60 per cent of the country's 9 million citizens live in villages of less than 5,000. In order to reach them, transmitters have been built all across the country's mountainous face and in such exotic island sites as Crete, Corfu, Rhodes and Lesbos. Five of the transmitters stand like a picket fence along the country's northern frontiers with Albania, Yugoslavia and Bulgaria.

All But a Few

With the present system, television can reach all but that small percentage of the population which is tucked away behind certain mountain ranges that form a "television shadow." It is expected that ultimately they will be covered as well.

In an interesting example of corporate cooperation, the Page-built transmitter outside Chania, Crete, will bring television entertainment to the personnel at the NATO Missile Firing Installation there — including the seven-man Northrop Ventura team providing the target services program for the various NATO missile crews that use the facility. The Page TV transmitter near Volos, in eastern Greece, will probably help to brighten the evenings for the Northrop Aircraft Division team serving as technical representatives with the Royal Hellenic Air Force squadrons flying Northrop F-5 tactical fighters. Page takes care of its own too; the PCE team completing the giant Voice of America transmitter at Kavalla will tune in to the Page-Europa television transmitter of Pangeon, just a few miles away.

The TV network is currently transmitting black and white television about three hours during the daytime and six hours during the evening. The system also has provisions for additional channels and for color television—either the German PAL or the French SECAM technique to make it compatible with its American counterpart. Like the United States, but unlike most European countries, Greece stepped directly into commercial television, with a wide range of advertisements already sprinkled liberally throughout the programming day.

The Northrop-Page designed system includes two mobile TV studios and a modern, sophisticated permanent studio now under construction about 10 miles from here. The new facilities will enable the national network to tie into the continent-wide Eurovision system and, eventually, into satellite television.

The giant short-wave complex 35 miles from here provides two 100 kilowatt transmitters for worldwide coverage on all frequencies and is one of the most powerful in the Middle East.

Northrop International Staff Fills Key Roles

Over the past decade, as Northrop business interests have multiplied many-fold in the major market places of the world, the services and talents of a small group of employees have assumed ever-increasing importance.

They are the men and women of Northrop International.

Northrop Vice President C. Robert Gates and a small staff at Century City guide the efforts of this unique group.

However, many of the day-to-day tasks fall to those on duty in 10 Northrop International liaison field offices. The locations of these offices—Paris, Oslo, Rome, Tehran, Beirut, Madrid, Athens, Bangkok, Taiwan and a special office for Latin America located at Century City—mirror Northrop's current worldwide business involvement.

Relying upon rare combinations of skill, talents, background and training, these individuals serve as representatives of all Northrop operating elements. They must know precisely what is taking place in every Northrop project, program or proposed effort in the vast geographical territory they cover.

More they must remain acutely tuned to conditions in the countries they serve, ranging from the present political "climate" to the temperaments of the leaders, the requirements of the nations they serve and how they fit into international conditions. They brief and de-brief all Northrop visitors to these countries to assist them in carrying out individual and group missions, and provide continuity to Northrop's many international marketing objectives.

Typical of the rare breed of men who fill these assignments is Geoffrey Parsons, a Northrop International vice president and manager of the Paris office.

Geoffrey Parsons

The Paris office is the oldest of Northrop's overseas offices, dating back to 1957, and Mr. Parsons is the dean of Northrop's International field office managers, having served in Paris since that time.

Mr. Parsons likes to recall the exchange between himself and Whitley Collins, then Northrop's president, that led to his joining Northrop and opening the Paris office.

"Mr. Collins tendered the job offer and I protested that I knew nothing about the aircraft business," he says. "Without batting an eye, Mr. Collins countered with 'then it's a fair exchange, since in California we know almost nothing about Europe.'"

Geoff Parsons speaks fluent French and is able to "get by" in other European languages. When he was a lad of 12 years, his parents spent 18 months in France while his father researched a book subsequently published under the title of "The Stream of History."

Following schooling at Harvard, Mr. Parsons joined the Boston Globe as a reporter in 1931. Six years later he opened the Middle Western Bureau of the New York Herald Tribune in Chicago, covering a "beat" that stretched from Cleveland and Detroit to the West Coast.

On The Scene

Before Pearl Harbor, in September 1941, he went to London as a war correspondent. He covered World War II from Britain, with the exception of time out to report from Algiers in 1943.

Within a few days of the liberation of Paris in 1944, Geoff Parsons was dispatched there to prepare for the resumption of the publication of the Paris Edition of the Herald Tribune which he edited for the next seven years.

In October 1950, Mr. Parsons was recruited to join the newly born North Atlantic Treaty Organization where he served seven years as chief of Press and Public Relations and director of Information.

He feels that this experience provided him not only with a basic understanding of the defense and political problems of the Atlantic Alliance, but also a wide acquaintance with the key personnel in foreign and defense ministries in Europe. "Many of the relatively junior people I met in the NATO delegations then have matured and moved upwards into key positions of responsibility today," he says.

Geoff Parsons and his wife, Drue, live in an apartment in the heart of Paris.

"Our building was constructed as a part of a real estate promotion under Louis XIII in the 1630's," he says. "The elevator is slightly more recent."

The Parsons were married in Paris in 1945.

Drue Parsons grew up in Santa Monica, followed a film career in Hollywood and acted on the stage in New York and London. Her first husband, a Frenchman, was killed in Syria while serving with the Free French forces.

Mrs. Parsons lived in Paris during the German occupation period. As an active member of the French Resistance she harbored 30 Allied flyers and helped them to escape, receiving for her deeds decorations from the French, British and United States governments.

The first Northrop European office was located in the Parson's apartment, later moving to 12 Avenue Hoche and still later to its present location at 12 Rue Hamelin.

(Editor's note: Northrop News will present profiles of other key Northrop International personnel in subsequent issues.)

Credit Union Sets 6% Dividend Rate

Northrop Credit Union has paid its shareholders another semi-annual dividend of six per cent.

The latest dividend was paid on deposits of record Nov. 30, 1971, and was posted to accounts Jan. 1, according to Credit Union President Glenn Thornton who announced the dividend for the board of directors.

Mr. Thornton noted that the dividend, when compounded semi-annually as the Credit Union does, actually amounts to an annual rate of 6.09 per cent.

Northrop Credit Union offers Northrop employees a systematic method of saving via payroll deductions. It also provides members with low cost loans for the purchase of new or used automobiles, trailers and campers, as well as homeowner and personal loans.

Robert R. Miller Mourned

All Northrop personnel were saddened last month with the death of Robert R. Miller, 68, who passed away at Santa Monica Hospital after a brief illness.

Mr. Miller retired in 1968 as a Northrop senior vice president, but continued to serve the company as a consultant. He was also a member of the Northrop Corporation board of directors as well as a member of the board of three Northrop subsidiaries, Page Communications Engineers, Northrop Architectural Systems and Northrop Carolina, Inc. In addition, he was a director of the Northrop affiliated company Construcciones Aeronauticas, S.A. of Spain.

A graduate of the University of California at Berkeley, Mr. Miller was an executive in investment and manufacturing fields before joining Northrop in 1951. He served as assistant to the vice president for Customer Relations, vice president for Administration, and vice president and general manager before becoming a senior vice president.

Mr. Miller is survived by his wife, Mary; a brother, Howard Miller of Santa Monica; and a sister, Mrs. Marion Vallat of Calgary, Canada.

Godfrey Receives Top Jaycee Honors

A Ventura Division contracts administrator has been awarded one of the highest honors of the Junior Chamber International.

Forrest W. Godfrey, active in numerous civic and community activities, has been named a JCI Senator.

A past-president of the sponsoring Camarillo Jaycees, Mr. Godfrey joined the club in 1963 when he also joined Northrop. He held several Jaycee posts, including district governor and state director.

Mr. Godfrey

Mr. Godfrey is a trustee of the Pleasant Valley School District, president of the board of trustees of his church, and has served on the Ventura County Selective Service (Draft) Board since his appointment by President Nixon in 1969, to name a few.

JERRY TORGERSON

Young Gridder Picked for All-CIF Team

Jerry Torgerson, the youngest son of Ventura Division Senior Engineer Russ Torgerson, had an outstanding high school gridiron career capped by his selection to the All-CIF 'AAA' division first team.

Young Torgerson quarterbacked his Newbury Park High Panthers to a Marmonte League championship for the second year in a row. Last year he was third team All-CIF (Southern California).

His passing and running performance resulted in 2,288 yards gained in nine games and also earned him Marmonte League Player of the Year honors for the second consecutive season.

Although just 5'10" and weighing 155 pounds, Jerry ran the I-formation quarterback option play to perfection. The team he co-captained averaged more than 30 points per game.

JERRY TORGERSON CARRIES THE MAIL
Northrop son made All-CIF team. (Thousand Oaks News-Chronicle photo.)

Jerry's father, a 10-year Northrop employee, credits "competition with his older brother over the years," as a major contributor to the young man's success.

"His brother, David, is five years older than Jerry and Jerry always tried to keep up with him athletically," he said.

Aspiring to such high standards has resulted in a top baseball performance, too. Jerry has been an all-league shortstop for two years and no doubt will repeat this spring.

Brother David's baseball prowess led to a contract with the San Francisco Giants organization, although he is now attending Milligan College in Tennessee.

Colleges Want Him

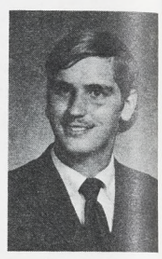
Jerry's college plans are not definite. He has been offered an Air Force Academy nomination and has had feelers from Oklahoma, Stanford, New Mexico State and Yale (his academic grade average is 3.75).

Does he aspire to professional sports? "I don't think he'd pass it up," his father commented, "but ideally he'd like to be an airline pilot and live on a ranch."

At 17, though, his plans remain flexible while his athletic and scholastic foundations are very solid.

Bruce Parr Is Selected for Who's Who List

Bruce Parr, son of Stan Parr, of the Electronics Division, has been selected to have his biography published in Merit's "Who's Who Among American High School Students."



Bruce Parr

The publication is the largest and leading volume in the field of student achievement books. It is widely acclaimed and recognized by educators, government, industrial and religious leaders.

Bruce, 16, is a senior at John F. Kennedy High School in La Palma. He is an honor student (3.9 grade average) and a member of the California Scholarship Federation.

His other activities include editing the school's yearbook, serving as a teacher's aid, playing in band concerts and photography.

Bruce plans to continue his studies this fall at Cypress Junior College. His present career objective is to become a lawyer.

MEETING SET

Northrop Credit Union will hold its annual shareholders' meeting at 5 p.m. Feb. 1 in the Aircraft Division's Plant One cafeteria. Shareholders of record on the books Feb. 1 will be entitled to vote at the meeting.

Researcher Does Strange Things in Tests

A Northrop researcher under a NASA contract at Langley Research Center is putting round pegs in square holes, reading backwards, and having a blinking time with lights.

This is part of a study of noise pollution — its sources and its effect upon human beings. The researcher is daily subjected to sounds of low flying aircraft while performing exacting mental and physical tests.

In one part of the tests he sits in front of a panel of blinking lights which are computer controlled. He must match light sequences by the use of two levers and pedals. Periodically his work is interrupted by the loud noise of low flying aircraft. The objective of the test is to measure the reaction and efficiency of the operator when noise interrupts.

Other problems that must be solved in an environment of noise include a multi-dimensional performance test based on the old square pegs in round holes game. It is designed to study man's ability to do problems in a limited time under sound stress.

In another test the researcher must put a phonograph needle inside small circles on a spinning turntable while loud noises fill the room. Still another test involves a mirror device where writing must be read and defined backward.

The program has been under way for the past two years under the direction of Dr. Randall M. Chambers of NASA's Human Factors Branch. The Northrop man on the program is Bill Eaton, Northrop Services Inc.'s program manager at Langley. Northrop Services Inc., an operating unit of the Electro-Mechanical Division, is under direction of William J. Oakes.

According to Dr. Chambers, valuable data has been collected relative to human reaction to noise which will aid in long range noise abatement programs.

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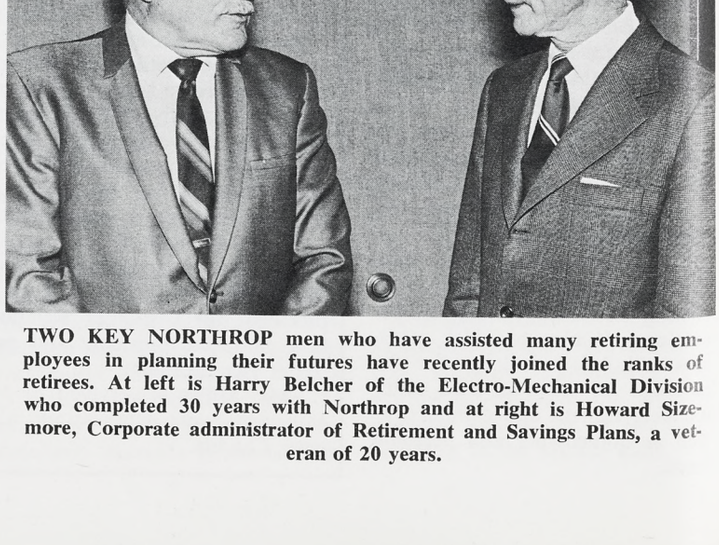

TWO KEY NORTHROP men who have assisted many retiring employees in planning their futures have recently joined the ranks of retirees. At left is Harry Belcher of the Electro-Mechanical Division who completed 30 years with Northrop and at right is Howard Sizemore, Corporate administrator of Retirement and Savings Plans, a veteran of 20 years.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Opel, 1970 GT, fully equipped, 102 h.p., $2,400. 213-644-3111.

Volkswagen, 1970 Camper Bus, new tires, pop top, $2,995. 213-370-9813.

Volkswagen, 1969, r/h, 4-spd. trans., $1,550. 213-326-7084.

Jaguar, 1959, XK 150, new Koni shocks, paint & convt. top, $1,050. 714-622-2757, 213-398-7155.

Comet, 1960, new tires, batt., $225. 213-371-8867.

Datsun, 1971, 2-dr. sedan, stick shift, r/h, 16,000 mi., $1,695. 213-547-3837.

Mustang 2+2, 1965, 4-spd., V-8 fastback, r/h, $595. 213-679-3889.

Falcon, 1968 2-dr., auto., r/h, p/s, $900. 213-671-4550.

Pickup, 1963 Chev., ½-ton, V-8, auto. trans., r/h, a/c, 32" camper shell w/boot, $1,225. 213-671-9231.

Ford, 1967, Gax-500, V-8, convt., r/h, a/c, $950. 714-839-8833.

Fiat 1200, custom body, 1961 convt., 4-spd. stick, $375. 213-633-2990.

Honda 600, 1971 sedan, radio, shop manual, 42 mpg, $1,095. 213-325-3057.

Rambler, 1962 Classic 6 sedan, needs work, $50. 213-541-1277.

T-Bird, 1963, full power, a/c, $425. 213-374-4703.

Metropolitan, 1959, h/top, $125. 213-862-8783.

Pontiac, 1968 Catalina, 4-dr., 58,000 mi., new tires & batt., $1,050. 213-377-2968.

Renault R-8, 1963, 4-whl. d/brakes, r/h, $250. 213-831-9589.

Plymouth, 1965 Valiant, 4-dr. sedan, r/h, 225 cu. in. 6 eng., auto. trans., $350. 213-375-4747.

Cadillac, 1962 h/top, 4-dr., full power, $375. 714-523-5389.

Miscellaneous For Sale

Tapedeck, AKAI M-8 & recorder w/spkrs., mikes, headphones, $150. 213-866-7457.

Theater Organ, 2-manual, 32 note pedal, 53 stops, amplifiers & spkrs., $2,000. 714-539-1531.

Manual, Motor's auto repair, 26th edition, 1953-1963, $5. 213-375-1685.

Typewriter, IBM elec., $165. 213-673-5614.

Acreage, 5 acres, Antelope Valley, some paved frontage, $400 dn., $6,000. 213-378-1026.

Trolley Hoist, 1½ ton cap., runs on straight or curved 5" I-beam, $95. 213-457-9600.

Cabin, lge., 5 acres in Apple Valley, all utils., $11,500. 213-327-4356.

Typewriter, Royal standard, $225. 213-398-9100.

Guitar, Spanish, made in Mexico, instruction books, $25. 213-676-8817.

Tent Trailer, 1966 Travel Mate h/top, sleeps 7, range, ice box, water sys., extras, $550. 213-798-3002.

Exercise Bench, 6 positions, $15. 213-483-0100.

Pups, Chihuahua, pedigree & AKC papers, $65-$150. 213-866-1276.

Bicycle, girl's 20", $15. 213-672-3202.

House, 2-bdrm., extra wide lot, 60x141, room to build in rear, No. Inglewood, $19,000. 213-671-6692.

Camper, 8½' full cabover, 3-burner stove, ice box, sleeps 4, incl. jacks & awning, $695. 213-325-2292.

Dinette Set, no-mar wood grain oval table w/6 green chairs, $30. 213-374-7625.

Motorcycle, 1971 Honda CB 350, take over $35 mo. pymts. or $150. 714-879-2569.

Mobile Radio, G.E., 25 w., VHF-FM, $35. 213-322-6655.

Table Saw, 10" Craftsman, w/stand & motor, $100. 213-674-0880.

Bicycle, Puegeot folding-type deluxe, many access., $60. 213-375-5760.

Movie Camera, Bolex, model D8L, 8 mm, pistol grip & carrying case, light bar, $50. 213-428-3529.

Guitar, fender stratocaster Sunburst elec., hard-bodied case, $200. 213-541-2675.

Playpen, Peterson comb. w/pad, $15. 213-676-6738.

Miscellaneous For Sale

Wheel Chair, folding, $65. 213-833-5515.

Bar Stools, 4 wrought iron, $20. 714-838-7161.

Camera, Rival, 35 mm, w/p&b flash gun, $20. 714-523-5315.

Motorcycle, 1970 Honda SL 90, $275. 213-377-5897.

Guitar, elec., St. George, bltin reverb., $30. 213-378-4567.

Fireplace, standing-type, 65" high, complete w/all hardware, screen, grate, $200. 213-378-9660.

Opera Glasses, antique French, gold & pearl, $35. 213-379-5652.

Desks, 2 children's & chair, $7.50. 213-376-4831.

Archery Set, 50 lb. recurve bow, quiver, arrows, glove, $15. 213-327-4585.

Ski Pants, 3 pr. women's size 10, $8-$15. 213-676-3050.

Shopsmith, Mark V, full set of attachs. incl. jig saw, $125. 213-573-1760.

Motorcycle, 1969 Honda SL 90, 2,000 mi., $275. 213-596-2039.

Speakers, 2, 15", J. B. Lansing LE 15A, $65 ea. 213-673-5762.

Snow Chains, 3 sets, $7.50 ea. 213-676-6449.

Patio Set, 12-pc. Brown & Jordan, won on TV show, $1,000. 213-865-8400.

Acreage, 40 acres, 175 miles north of L.A., $395 acre. 213-370-3821.

Mini Bike, Taco, new motor, $80. 213-377-1074.

Ski Boat, custom, Higbee hull, 90 Merc. o/b, safety equip., $1,500. 805-482-0264.

Chair, vinyl, avocado green, recliner, $35. 213-324-8853.

Ski Boat, 17' Stevens, natural wood deck, Pontiac eng., vee dr. w/reverse, galv. trailer, $1,750. 714-528-3630.

Fishing Equipment, ocean reels, rods, assorted tackle, $50. 213-755-6118.

Trans-Cooler, Hayden, $20. 213-375-6114.

Acreage, 2½-acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, $6,500. 714-673-7752.

Enlarger, Omega D-2, 2 lens, 2 condensers for 35 mm & 4 x 5, $165. 213-373-3098.

Cabin Cruiser, 1971 24' Reinell, fiberglass construction, 215 h.p. OMC stern drive, galley, full camper cover w/side curtains, E-Z loader tandem trailer w/Surge bks., $7,900. 805-498-8877.

Pup, poodle, AKC, apricot, female, papers, small miniature, $50. 213-866-4104, 213-429-4150.

Stove, Gaffers & Sattler, dble. oven, coppertone, gas, 2 yrs. old, $160. 213-644-6325.

End Tables, 2, Danish walnut, never-mar tops, $20 ea. 213-541-3000.

Typewriter, portable manual Remington, $40. 213-396-5837.

Motorcycle, 1968 Honda 350, $450. 213-645-7114.

Dressing Table, antique, w/triple mirror, 2 drwrs., mahogany finish, matching small cane seated chair, $137.50, many other items. 213-474-5726.

Home, corner, 2-story, 4-bdrm., 2 baths, f/place, cpts., dps., across from new Los Cerritos shopping center, $31,900. 213-860-3022.

Coat, mink, ¾ length, autumn haze, never worn, $395. 213-347-4599.

Table, 30", 16" high, Scandinavian oiled walnut, $35. 213-831-6882.

Bench Saw, 10" Craftsman, 1 h.p. mot., stand, exten. table, guard, ex. blades, DADO set, $130. 213-378-1771.

Mountain Lot, Running Springs, Calif., on maintained county road, ¼ mile from Rte. 18, $5,500. 213-330-7330.

Wanted to Buy

Trailer, small, for 12' boat. 213-927-5967.

Aquarium, 30 to 45 gal., hood, stand optional. 213-423-5398.

Cadillac, 1965 or '67 Brougham or sedan De Ville, fully equipped. 213-373-1098.

Camping Trailer, self-contained, less than $2,000. 213-830-1216.

Sunbeam Alpine, for parts, 1963-1969, also need h/top. 805-482-3893.

Bicycles, man's & woman's, used, preferably 3-spd. 213-545-2577.

Anvil, as used for blacksmithing or metalsmithing, 50 to 100 lbs. 213-375-3977.

Lots, improved, w/alleys, or 3 to 5 acres suitable for garden apts., must be subject to zoning changes, if not already zoned for apts. 714-828-2857.

Free (To Be Given Away)

Pups, Doberman/German shepherd. 213-323-6786.

Navy Yacht Club Bestows Honors on Herbert Turner

The Navy Yacht Club of Long Beach has presented its "Yachtsman of the Year" award to Herbert A. Turner, Jr., Electro-Mechanical Division Management Systems. The award is made annually to the member who has contributed most to the club.

Mr. Turner's contributions included helping frame a new constitution, development of fiscal policies, and his leadership in his office of Rear-Commodore. In the general election following the presentation, he was elected Vice-Commodore for the coming year.

The Navy Yacht Club, an organization of active and retired Navy, Air Force and Coast Guard officers and enlisted personnel is devoted to the promotion of sailing and sailboat racing.

With the new concept of smaller ships in the Navy, new emphasis is being directed to the development of seamanship skills which have generally disappeared in today's fleet of supership. Sailboating and racing demands the maximum of skills in dealing with wind, current, and seamanship. Toward this objective, Herb is a member of the Naval Station Advisory Council for Seamanship and Sailing, as well as being a delegate to the Southern California Yachting Assn. and the Newport Ocean Racing Assn.

This involvement with seamanship and the Navy may seem a bit odd for a retired Army officer, but Herb has had an obsession about sailboats since he was nine. He built his first boat at eleven, raced his own Snipe class boat at 16, and became a Sea Scout Quartermaster at 18.

NORTHROP NEWS

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Mail Address: Northrop News, 170/62, Northrop Corporation
3901 West Broadway, Hawthorne, California 90250
Telephone: (213) 675-4611, ext. 4273

Free (To Be Given Away)

Dog, champagne, poodle w/a little terrier, female, all shots, approx. 1 yr. old. 213-378-7846.

Pups, small, short-haired, male & female, 9 wks. old. 213-329-9625.

Rentals Offered

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

Home, Westchester, 1-bdrm., cpts., dps., stove, refrig., air cond., soundproof, carport w/storage locker, water pd., no pets, baby ok, $150 mo. 213-756-5157.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Garage, preferably for storage, vic. 117th & Crenshaw Blvd., $10 mo. 213-756-3669.

Condominium, 1-bdrm., in Mammoth, Calif., full kitchen facilities, sleeps 5, $40 w/end, $60/midwk. 213-785-1405.

House, 3-bdrm., 1½ baths, cpts., dps., bltin stove, Lawndale, children OK, no pets, $225 mo. 213-676-0044.

Apt, Redondo Beach, 1-bdrm., cpts., bltins, central vacuum, gar. w/storage cabinets, 1 month's free rent, $140. 213-379-6549.

Home, living, family, & music rooms, 3-bdrm., 1¾ baths, patio, 5 blocks from Aircraft Div., $250 mo. 213-887-7766.

Pickup, w/11' camper, rigged for snow & cold, sleeps 6, $100 wk. & 5¢ mi. 714-544-0730.

Apt, 1-bdrm., unfurn., sub. parking, pool, bltins, cpts., dps., 10 min. to Northrop, $150. 213-679-1825, 213-670-6084.

Home, Torrance, 3-bdrm., 2 baths, family rm., 2 f/places, bltin stove, dishwasher, cpts., dps., fenced yd., $370 mo. 213-373-1933.

Found

Earring, Indian silver, parrot-shaped w/green jade, at Ventura main gate, call Ventura ext. 329.

Personals

It's been a privilege to have known & worked with so many nice people at Northrop. Thanks for the retirement parties & gifts. JOHN STRASSER.

I wish to express my gratitude to all of you with whom I have worked & to thank all of my many friends at Northrop for helping to make my retirement a happy one. My best wishes to all of you. HOWARD SIZEMORE.

On the occasion of my retirement from the Electro-Mechanical Div., I'd like to say Aloha to all my dear friends with whom I've worked during my 11½ years with Northrop. THELMA GRADY.

Thank you for the kindness & sympathy expressed on the death of my husband, Bill McGill. Due to your generous contributions an educational fund of over $500 has been established for our son. VIRGINIA McGILL.

We wish to thank N.A.R., N.R.C. & fellow employees for the beautiful flowers & kind expressions of sympathy in memory of our father, Chris H. Graber. ALLEN C. GRABER & GLADYS TELFORD.

I would like to thank everyone for the understanding & sympathy expressed at the passing of my mother. ED KONG.

Ironing, by piece or hour. 213-371-5075.

Ride Wanted, 8 a.m.-4:42 p.m., near Hawthorne & Torrance Blvds. to NCL bldg., Aircraft ext. 1281, 213-542-2390.

Ride Wanted or Car Pool, 8 a.m.-4:42 p.m., 135th & Spinning Ave., Gardena to Engineering Science Center, Aircraft ext. 2313.

George Fritzel Heads List Of Service Pin Recipients

George Fritzel, Drone program office director, heads the list of Electronics Division employees qualifying this month for award of Northrop service pins.

Mr. Fritzel, a 25-year veteran, began his Northrop career in 1947 as an engineering technician. Prior to assuming his present duties, he served as director of Operations for the Navigation Department.

Other employees receiving service pins this month are:

Hawthorne

Fifteen years: Theodore Ito and Kay Kauffold.

Ten years: Tadashi Katayama, Lawrence Smith, James Ross, James Zwickel, David Kennard, James Schallmo, James Trigwell, Oscar Bates, Jr., Clea Wyatt and Louis Proctor, Jr.

Five years: Wesley Carter, George Nichol, William Taylor, Frank Turcany, Timothy Congelliere, Donald Devlin, Jerry Hershberg, Ellen Diamond, Wilmont Baker and Sharon Dunn.

Palos Verdes

Fifteen years: Alfonso Pena, Jose Herrera and June Brown.

Ten years: Lloyd Jones, Ronald Williams, R. H. Bingham, Mel Hedine and Marian Owens.

Five years: Ashton Caldwell, J. F. Linder, Lawrence Williams and Sheri Ostella.

TOM GRETTUM, left, receives check for $338 from Ralph Brant, foreman, Inertial Measurement Repair unit.

Grettum Earns Cash for Idea

Tom Grettum, of the Electronic Repair unit, was recently awarded a check for $338 to top the list of Electronics Division employees receiving awards this period under the Northrop Suggestion Awards program.

Mr. Grettum's idea involved the replacement of costly Sealite screws, used on certain computers, with a less expensive type.

Other employees receiving awards were C. P. Irwin, JIFDATS Systems Test group, $130; J. E. Collins, Technical Data Services, P.V., $82.50; and Mike Cheek, C-5 Contract Administration, $60.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

NEW CLUB OFFICERS FOR 1972
Tom Brady, right, discusses plans for new year with John Roehrig, Don Mealy, Chuck Porterfield and Gary Lewis, from left.

Management Club Members Schedule First Meeting

Electronics Division Management Club will hold its first meeting of the new year Feb. 16, at Lo Coco's Restaurant, 612 Sepulveda, Manhattan Beach.

Guest speaker for the evening will be Ross F. Miller, general manager. Mr. Miller's talk will center on "The Requirements for Success in 1972."

Another highlight of the evening will be the installation of new club officers for 1972. They are Tom Brady, chief, Employee Relations and Training — president; Gary Lewis, supervisor of Support Services—vice president; Don Mealy, supervisor of Technical Writing — secretary; John Roehrig, supervisor, Cost Estimating—treasurer; and Chuck Porterfield, chief, Production—sergeant-at-arms.

The meeting will begin at 7:30 p.m., preceded by dinner at 6:30 and a social hour at 5. Reservation slips will be sent to members early next month.

RADIO CLUB SETS 'NOISY' MEETING

Bill Nelson, WA6FQG, of the Southern California Edison Co. will present his interesting presentation on "Noise" at the 5 p.m. Feb. 7 meeting of the Northrop Radio Club at NRC Clubhouse, Hawthorne.

Other interesting programs planned by the club for the coming year include new code and theory classes in March, MARS affiliation for contacts between overseas military personnel and their stateside families, contests, field trips and others. Contact Dick Mirko, ext. 4382, of the Aircraft Division for information.

Camera Catches Happy Faces at NRC Children's Christmas Party

FRED NOAH and daughter, Janet, pick up presents following entertainment portion of program.

John Kennedy and family beam for photographer on stage at Shrine Auditorium. (Photos by John Welsh)

CONNIE KNOBLACH was one of many Electronics Division "helpers" at the Northrop Children's Christmas Party.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 2 | February 1972

NEW STRATEGIC SYSTEMS TEAM
From left, Joe Radigan, Herb Stark, Lloyd Balsam and Dr. William Parker.

Division Increases Effort In Strategic Systems Area

A Strategic Systems office, under the direction of Dr. William Parker, has been established within the Navigation Department.

The new office, according to Dr. Parker, was formed in recognition of the Electronics Division's business-growth goals—to intensify Northrop's pursuit of a broad range of strategic programs expected to receive increasing emphasis by the Department of Defense.

Working with Dr. Parker are three of Electronics Division's key program personnel. They are Joe Radigan, who will be technical manager, Strategic Systems; Lloyd Balsam, manager of Program Development; and Herb Stark, program manager of the Reentry Computer - Trade Off Technology (RC-TOT) study. Mr. Stark was the manager of a very successful program for USAF-SAMSO and was appointed project manager of RC-TOT when it was awarded last July.

"We feel our position in the strategic systems arena has increased tremendously in recent months," said Dr. Parker. "New developments in our hybrid-microelectronic circuit packaging technology, along with our previously established inertial systems and computer capabilities, should provide us with a formidable base from which to pursue these new program opportunities."

Dr. Parker added that the expertise of the division's Precision

(See STRATEGIC, page 6)

BLOOD BANK SET

Signups are in progress throughout Northrop facilities in the Hawthorne complex for a bloodmobile visit set for March 3.

This quarterly blood bank operation will be conducted from 9:30 a.m. to 2 p.m. at NRC Clubhouse, Hawthorne. Volunteers are being solicited from all facilities in the area.

Rec Club Installation Seats '72 Officer Slate

More than 50 Electronics Division employees and their guests gathered at Del Contes Restaurant in Torrance recently to honor last year's slate of NRC officers and to install a new executive council for 1972.

Tom Brady, chief of Employee Relations and Industrial Relations representative on the council, opened the festivities by introducing key members of management at the event. Present were Ross F. Miller, general manager; Dr. V. W. Howard, vice president and manager of the Advanced Systems Department; George Chalmers, vice president and manager, Financial Management Department; and Hal Janssen, director of Industrial Relations.

Following the introductions, Otha "Stubby" Stubblefield, 1971 NRC president, addressed the audience and noted that everyone in attendance should be proud to be a member of NRC.

"Each of you have helped to provide some sort of service to meet the recreational needs of your fellow employees," he said. "This fact, along with the club's new activities in the community, made 1971 a very successful year for NRC."

At the conclusion of his remarks, Mr. Stubblefield officially turned over the gavel of the presidency to Dorothy Baldwin, who said that being president was the greatest honor she had ever received. She then introduced the other members of the '72 council: Ed Sterbenz, vice president; Dick Reamer, treasurer; Frank McGinley, sergeant-at-arms; and Connie Knoblach, Special Events chairman. Not present was Marian Owens, secretary.

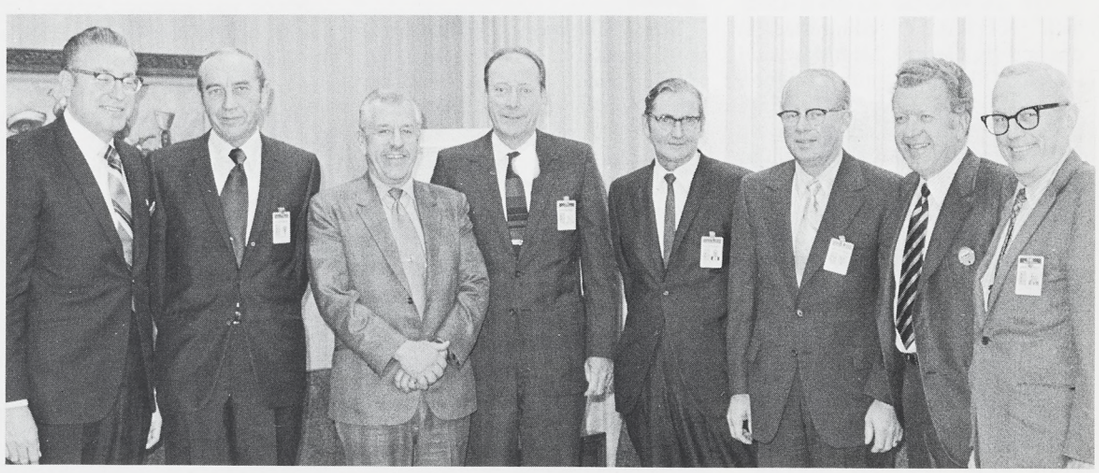
Mr. Miller, in his annual "Salute to NRC," praised the work of last year's council and said the club is doing "a fine job" and that it "projects a very favorable image of all employees in the Electronics Division."

(See NRC, page 6)

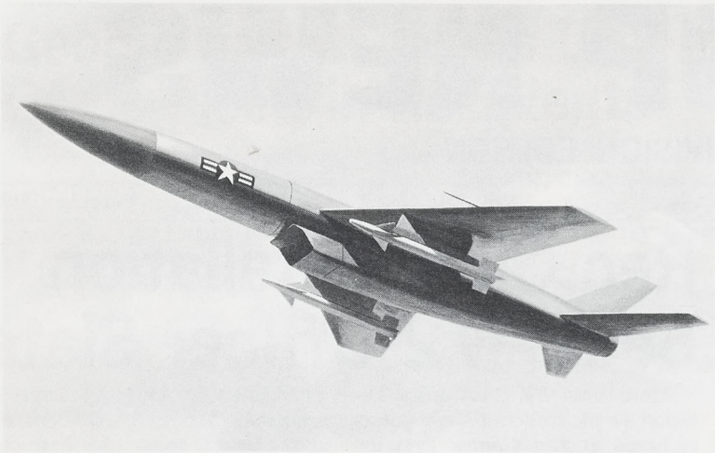
Four Employees Win Cash Awards

Four employees received cash awards this month for their contributions to the Northrop Suggestion Awards Program.

Recipients and the amount of their awards are: Al Blanco, Fabrication unit, $40; D. R. Winters, Advanced Systems Department, Product Support unit, $25; M. M. Niehaus, Electronic Repair unit, $20; and G. S. Gardner, Inertial and Aerospace Ground Equipment Test unit, $15.



ELECTRONICS MEN RECEIVE 30-YEAR SERVICE PINS
The veteran employees gathered with their supervisors in the office of General Manager Ross F. Miller, second from right, for an informal pin ceremony. From left, are Dr. V. W. Howard, vice president and manager of Advanced Systems Dept.; Emil (Mo) Kalthoff, Lynn Kauffold, Larry Knight, director of Operations; Walt Grey, Dale Moreland, Mr. Miller and Clyde Getz.



VENTURA'S RPV CONCEPT, one of several Remotely Piloted Vehicle designs conceived by Ventura Division engineers, is this air-to-air model. Other RPV's would have air-to-ground, surveillance, and interdiction capabilities. Ventura is currently studying the RPV approach to tactical systems for the U.S. Air Force. Ventura artist Jack Calder provided the rendering.

Top Technical Team Preps Lightweight Fighter Bid

"Northrop has staffed its Lightweight Fighter team with a group of men whose heritage of lightweight fighter technology is unequalled in the U.S. aviation industry."

With these words Welko Gasich, Aircraft Division general manager, announced Northrop's intentions to compete in the USAF Lightweight Fighter Prototype competition and named Walter E. Fellers to head a special team of experts assembled for the task. Proposals in this prototype aircraft competition are due this month.

Mr. Fellers, who reports directly to Mr. Gasich in this assignment, is an internationally recognized leader in the field of research and development involving fighter aircraft. As manager of Advanced Systems, he has led the development of air combat analysis techniques and fighter design technology.

Since the 1940's, Mr. Fellers has been engaged in the development of primary fighter aircraft. Before joining Northrop, Mr. Fellers was a key member of the North American Aviation design team that developed the P-51, F-86 and F-100 USAF fighters and the FJ-1 Navy fighter.

Mr. Fellers has played leading roles in developing such highly successful Northrop aircraft as the T-38 trainer and the F-5 fighter. He was responsible for the advanced design of Northrop's A-9 entry in the A-X competition. He is one of the men intimately involved in developing the Northrop P530 Cobra air superiority fighter.

Mr. Fellers is one of the early supporters of the theory of air combat maneuverability which has become a design criterion for new fighter aircraft emphasizing air combat superiority.

Mexican Chamber Tabs Ed Aguilar

Northrop's Ed Aguilar was installed recently as the first vice president of the Mexican Chamber of Commerce of Los Angeles.

Mr. Aguilar is head of the Aircraft Division's office machine repair function and a Northrop 20-year veteran. He has been a member of the Mexican Chamber for many years, a director for eight years and previously served as its treasurer.

Acutely interested in Mexican-American affairs, Mr. Aguilar has served as a Northrop representative on the Vice President's Task Force on Youth Motivation, in various Equal Opportunities programs, and as a membership drive worker for the Chamber.

O'Halloran, Leavenworth To Fill Top NORAID Posts

Dan O'Halloran has been named chairman of the board of directors and Doug Leavenworth president of NORAID, Northrop's in-house charity organization, at a January meeting.

Mr. O'Halloran, Chuck Benson, Paul Jacobs, Whitey Lowe, Frank Mathes, John States and Sal Xifo represent the Aircraft Division; Mr. Leavenworth Electro-Mechanical; Lloyd Jones Electronics; and Frank Smith the Corporate office, on the board.

Mr. Xifo serves as vice president, Ernie Boren as treasurer and Marie Tully as secretary for the coming year. Mrs. Tully has been re-appointed administrator, Jo Roth of the Aircraft Division, deputy administrator, and Rudy Rivero, accountant, for another year.

The Hawthorne Aircraft Division NORAID committee is chaired by George Matuskey and includes Floyd Boggus, Lucianna Clack, Ted Garvey, Bill Hayman, Jo Roth, Bill Steen, Larry Brown and Jim Zimmerman. The Edwards AFB committee is comprised of Les Ferguson, chairman, Frank Harrison and Frank Ramme, while the Palmdale Committee is chaired by Guy Patt and includes Eutha Dame and W. W. White.

Harry Clark chairs the Electronics Division committee comprised of Roland Gagnon, Eloise Howell, Hollis Smith and Donald Weaver.

Duane Baptiste chairs the Electro-Mechanical Division committee with William Carey, Carl Jensen and Sally Moore as members.

Charles White, chairman, and Marlin Sloan and Riley Ponder comprise the Huntsville, Ala., committee.

MOUNTAINEERS

The Northrop Mountaineers will join with the Hundred Peaks Section of the Sierra Club in sponsoring a weekend of activities at Joshua Tree National Monument Feb. 26-27.

MARIE MURNANE RETIRES

That Friendly 'Hello' Turns to 'Goodby'

After 28 years of saying, "hello" to Northrop telephone callers, Marie Murnane is saying, "goodby."

Mrs. Murnane, communications manager, Aircraft Division, retired Feb. 4, after working with Northrop since September 1943.

Mrs. Murnane started her telephone career with the Bell System in her hometown of St. Paul, Minn., "Probably because I was always fascinated by the telephone."

In 1937, she came to California with her husband and son and worked for a short time as a secretary. A friend informed her of an opening at Northrop for a switchboard operator. Marie decided she would rather sweat over a switchboard than a typewriter and she joined Northrop in 1943, working in the telephone and telegraph sections which were located in the Bomb Shelter where Gate III now stands.

Marie was assigned to the Corporate office in Beverly Hills as the lead operator and spent nine-and-a-half years in this capacity.

During more than a quarter century at Northrop, she has worked with approximately 75 operators. "I can remember them all," she said. "This is not a very large number of people, our turnover of operators on the switchboard has never been great. I served under five Corporate presidents and five department managers."

Marie Murnane

Mrs. Murnane said that her 28 years at Northrop have been . . . "fascinating. After a while you learn to recognize voices and can tell a great deal about an individual just from the tone of his voice. The corporation's activities have become so far flung and diversified, that you never can tell when a call is coming from some exotic foreign land or locally, especially since technical improvements and the implementation of satellites have vastly improved transmission quality."

Receiving calls from the White House, or attempting to locate employees for emergencies, Marie has handled them all.

Final Talon Delivered At Palmdale Ceremony

DIGNITARIES taking part in delivery of final T-38 Talon are backed by the first T-38 delivered, left, and the last. Welko Gasich, Aircraft Division general manager, serves as emcee above. Below is Brig. Gen. D. G. Nunn, commander, AFCMD, turning over kingsized check to Mr. Gasich and Northrop President Thomas V. Jones symbolic of final payment in a program that has extended well into its second decade.

Tributes to The Talon

Brig. Gen. Donald G. Nunn, commander, AFCMD, USAF:

"I am delighted that Northrop Corporation built an airplane that did what they promised it would do, delivered it on a schedule they said they would deliver it on, and did it for the money they said it would cost."

Brig. Gen. Michael C. McCarthy, chief of staff, ATC, USAF:

"I have never heard anyone describe the T-38 as anything but a beautiful airplane. It is reliable in every parameter, a great performer, a remarkable airplane. It is a tolerance airplane, one that has passed the test of time to become more reliable with age."

Col. John R. Lindsay, deputy director, F-5/T-38 SPO, ASD, USAF:

"The T-38 Program easily qualifies as one of the most successful Air Force programs ever, as to costs, schedules, operational suitability and safety."

Thomas V. Jones, Northrop president:

"The T-38 Program stands as an inspiration of what can be done when people with courage and imagination using innovative approaches work together as a team to solve a specific need. We owe much to a small group of people who believed in this approach and worked with us."

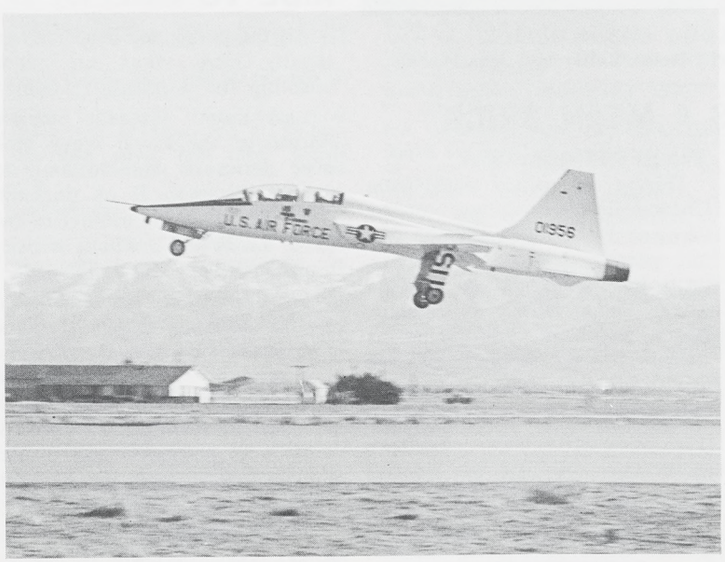
Congressman Barry M. Goldwater, Jr.:

"This Air Force-Industry team effort stands as a model in military aircraft procurement, a well-run effective program resulting in a high performance product at the lowest cost. The taxpayer would gain if all our federal programs, non-defense as well as military, met the same standards of efficiency."

Aerospace Daily:

"The T-38 project was unusual in that over a manufacturing span of 11 years the Air Force found no need to make a model change. Moreover, all deliveries without exception were on time and on cost. Five years after it went into service, the T-38 cost about 60 per cent less than when deliveries were begun despite inflation and cost escalation."

COL. J. R. LINDSAY, deputy director, F-5/T-38 SPO, called T-38 Program one of most successful Air Force procurement programs ever.



BREAKING GROUND on a flight from Palmdale to Randolph AFB, Texas, is the final Northrop T-38 delivered, the 1,187th ordered for use by the Air Force, Navy, NASA and the German Air Force.

READY TO FLY — Brig. Gen. M. C. McCarthy, left, and Lt. Col. Vince Roy sign final documents with Northrop Inspector Al Harding prior to flight.

Birthday Edict Returns Williams to Greenhouse

M. R. (Bill) Williams had a choice. He could start growing orchids again or he could return his birthday present.

This came about because Mr. Williams had previously grown orchids while serving with the Air Force in Hawaii, but had given up the hobby when transferred to colder climates. As the years passed he often spoke of building a greenhouse and resuming his hobby.

He did nothing about it until 1966 when his doctor recommended a hobby as therapy for an ulcer attack. His four children pooled savings from their allowances and gave him money as a birthday present. There was a stipulation that he had to use the money to build an orchid greenhouse or return it.

With this incentive he started again and today has two greenhouses with 600 plants of some 500 varieties producing blossoms ranging from one-quarter inch to some as large as 11 inches across. In addition he has another 800 plants growing in trees outdoors.

Mr. Williams saw some orchids growing in Hawaii in 1945 and became interested. He got two plants and kept expanding until transferred in 1948 to Selfridge AFB, Michigan, where the climate was not conducive to outdoor orchid growing.

The constant moves of military life made building a greenhouse impractical and he gave up the hobby until induced to return by his conditional birthday present.

While he now has close to a thousand different types of orchids, he says that he is still just beginning. More than 3,800 different native types have been identified, and there are over six and one-half million hybrids.

Mr. Williams works with the Aircraft Division Product and Supply Support, on spares for the A-9 program.

ORCHIDS FOR THE LADIES AT THE OFFICE
Bill Williams with Claire Payne, left, Helen Kelley and Jack Nation.

THIS LADY PACKS A MEAN BRICK

Donna Rothwell, 15, is now the world's champion women's brick carrier. The record is unofficial, but has been submitted for official recognition.

Donna is the daughter of W. A. Rothwell, who is now with Northrop International after working in the Aircraft, Electronics and Electro - Mechanical Divisions.

According to Mr. Rothwell, Donna carried a nine-pound brick on a two-mile walk to break the women's brick-carrying record. The previous record, according to Guiness Book of World Records, was 1.6 miles with an 8.75 pound brick.

During the record walk, from Corona del Mar school to her home in Newport Beach, she was not permitted to stop, rest or drop the nine-pound-load. Donna was accompanied by a neighbor, Bruce Robinson, who acted as witness for the record walk. He saw the former record in Guiness and suggested Donna try to beat it.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

MEDICINE MAN AND INDIAN GUIDES
Don DeOrio with sons Keith, left, and Todd, in costume.

Medicine Man Don DeOrio Leader in Indian Guides

The Indian Guides are "big medicine" according to Medicine Man Don DeOrio of the Electro-Mechanical Division.

The Guides are a youth program sponsored by the YMCA which differs from most programs of this type in being one that brings fathers and sons together. It is designed to foster companionship between the two. Their slogan is "Pals Forever."

The Guides are divided into nations and tribes and Mr. DeOrio is Medicine Man of the Bear Nations, and chief of the Comanche Tribe.

As Medicine Man he acts as the organization's spiritual and heritage leader. He leads opening and closing prayers and on campouts participates in the campfire council. He is also responsible for the Indian heritage ceremonies, such as bringing the drum to life.

Drums were the heart of the old Indian tribes and had to be brought to life with a sacred ceremony before they could be accepted as part of the tribe.

The Indian Guides program is for boys from the first through the third grades. Fathers can be any age if young in heart. Recently a new program was added, called the Warriors, which will keep the father - son program alive through grades four to six.

"The Guides are a very fine program because it is not just something to keep children busy. It is designed specifically to bring father and son closer together," Mr. DeOrio said. "Fathers of young sons will find this an excellent way to get to know their children."

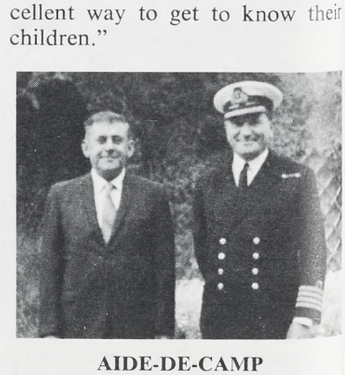
NORTHROP KIN AIDE TO QUEEN

All the pomp and ceremony of royalty have taken on added meaning for a Northrop family.

Last month Captain Stephen Barton of the Royal Navy took over duties as aide-de-camp to Queen Elizabeth II of England. Capt. Barton is the brother-in-law of C. I. "Brad" Bradley, security representative, Aircraft Division.

Mr. Bradley and his wife, Stella, met in Germany shortly after the end of World War II when he was serving as assistant chief of the Criminal Investigation Division for the European Command. They were married in 1948. Mr. Bradley retired from the Army in 1956 and joined Northrop in 1957.

"Capt. Barton has been in the Royal Navy 34 years and serves as chief of Training in regular duties," Mr. Bradley said.



AIDE-DE-CAMP
C. L. Bradley with Capt. Stephen Barton.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Station Wagon, 1966 Fairlane 390, full power, air, stereo tape, extras, $850. 213-324-1908.

Ford, 1966 Gal. XL convt., p/s, p/b, auto. trans., many extras, $700. 213-372-1809.

City Bus, Ige., GMC, diesel, auto. trans., $1,700. 213-370-3821.

Fiat 850, 1969, sport cpe., new clutch, batt., brakes, valves, $1,050. 213-457-9600.

T-Bird, 1956, completely restored, near new eng., trans., $2,500. 213-756-1812.

T-Bird, 1963, delux sport mod., convt., 48,000 mi., $599. 213-675-4786.

Ford, Ltd., 428 c.i.d., air, spd. control, AM-FM radio, 48,500 mi., p/s, $1,300. 213-329-3476.

Oldsmobile 98, 1969, full equip., stereo, cruise control, tilt wheel, $2,350. 213-877-0131.

Cadillac, 1964 Coupe DeVille, all power, $795. 714-639-4438.

Volkswagen Camper, 1966, pop top, ice box, water pump, rebilt. motor, $1,500. 213-376-5156.

Volkswagen, 1968 Sunroof, r/h, $950. 213-326-7480.

Corvair, 1961 Monza, 4-spd. trans., 100 h.p., radio, shop manual, 66,000 mi., $150. 213-541-1625.

Station Wagon, 1964 Mercury Colony Park, p/s, p/b, a/c, r/h, $650. 213-868-0363.

MGB, 1966, wires, tonneau, r/h, $750. 213-677-7382.

Olds F85, 1963 new trans. & tires, eng. o/hauled, $450. 213-671-1815.

Mustang 289, 1966, air, wide tracks, $900. 213-328-5833.

Toyota, 1968 Corona DeLuxe, new motor & clutch, $950. 213-325-5441.

Camaro, 1967 SS 350, 4-spd., Cragars, pos-a-traction tires, $1,495. 213-375-3711.

Mustang, 1970 Boss 302, Cyclone headers, Mallory ignition, 3.9 posi., 16,000 mi., $2,600. 213-675-7443.

Truck, 1954 GMC, ¾-ton, $250. 213-370-1963.

Station Wagon, 1962 Pontiac Safari, 9-pass., p/b, p/s, a/c, $250. 213-375-0217.

Karmann Ghia, 1961, remanufactured eng., radio, stick shift, $299. 213-889-0191.

Corvette, 1968, 327 cc, 4-spd., convt., 30,000 mi., $2,600. 213-679-6000.

Roadster, 1923 T Ford pickup short bed body, all glass, 394 Olds eng., bored & stroked to 490 cu. in., street legal, many extras, $3,200. 213-423-9350.

Renault Rio, 1968, 4-spd., $700. 213-831-5304.

Renault R-8, 1963, 4-wheel d/brakes, r/h, $225. 213-831-9589.

Toyota, 1970 Corona, 4-dr. sedan, r/h, a/c, 12,500 mi., $1,900. 213-327-5792.

Volkswagen, 1965, $750. 213-327-2831.

Volkswagen, 1971, AM-FM radio, 7½" mag whls., $1,900. 213-373-4336.

Pickup, 1951 Ford V-8, 3-spd. stick, $325. 714-847-5938.

Vega, 1971 GT, fully equipped, still under warranty, 110 h.p., stereo tape, $2,800. 213-291-6075.

Miscellaneous For Sale

Couch, love seat, gold & white, $200. 213-327-3331.

Pool Table, 3½′ x 7′, precision lightweight table, oak woodwork, completely equipped, $150. 213-672-5649.

Acreage, 2.5 acres in Antelope Valley near Lancaster, city water & power, $6,500. 805-498-2304.

Condominium, 1400 sq. ft., all elec., secured bldg., 2-bdrm. & den, bltins, N. Inglewood, no planes, P.V view, $29,900. 213-674-1400.

Stole, mink, natural ranch, $100. 213-483-0100.

Pistol, Walther PPK, w/holster, $95. 213-785-1405.

Enlarger, Accura 35mm, $20. 213-324-0522.

Refrigerator, Gibson, $20. 213-672-1090.

Piano, upright, recently modern refinished, $180. 213-696-7529.

Pool Table, 3½′ x 7′, $40. 213-423-1363.

Miscellaneous For Sale

Chair, avocado green recliner, vinyl, $35. 213-324-8853.

Tripods, U.S. Army Signal Corps, $8 ea. 213-426-4060.

Home, corner, 2-story, 4-bdrm., 2 baths, f/place, cpts., dps., sprinklers, across from Los Cerritos shopping center, $31,500. 213-860-3022.

Dresser, 60" maple, dble., framed mirror. 10 drwrs., antique h/ware dove-tailed, $100. 714-830-3048.

Acreage, 2½ acres fronting on Adelanto pvt. airport, M-1, $65 dn., $65 mo., $6,500. 213-378-1026.

House, 3-bdrm., 1½ bath, 5½% loan, in Fullerton, $26,000. 714-871-5254, 714-362-2042.

TV Set, b&w, 19" portable Packard Bell, $19. 213-376-4831.

Rug, DuPont hi-low, beige 12′x13′, 20 oz. waffle pad, used very little, $55. 213-675-7673.

Organ, Conn, tube, Leslie spkr., 2 full key-boards, full pedals, needs some repair, $400. 714-524-2128.

Couch, Colonial, brown, $75. 213-772-0365.

Carbine, 8mm Mannlicher Mauser, full stock, sling, 20 rd. ammo, $60. 213-327-4585.

Motorcycle, 1969 Yamaha, 125 twin, $300. 213-375-0493.

Radio, C.B. base, Courier Royale, 23 ch., Turner 454 sideband mike, 30′ coax cable, $180. 213-371-8339.

Dinette Set, table, 6 chairs, metal, blue seats & backs, $20. 213-323-5119.

Lots, 6 dble. interment, Inglewood Park Cemetery, Park Terrace Sec., $1,000 dble. 213-320-7482.

Property, Ige., lakeview, waterfront, on Lake Shastina, terms, approx. .3 acres w/ view of Mt. Shasta, $34,500. 213-833-2584.

Trumpet, Conn, $95. 213-865-5084.

Motorcycle, 1971 Honda, CB 175, 900 mi., $500. 213-773-4165.

Mobile Home, 1968, Villa West, 20′x45′, 2-bdrm., 1 bath, adult park, $8,500. 213-327-4914.

Horse, 8-yr.-old mare, 15.2 hands, western tack avail., $450. 213-375-5332.

Lot, near Running Springs, Calif. off Hwy. 18, $4,595. 714-637-4067.

Water Softener, Sears custom series, programmed cycle, never used, $100. 714-637-4723.

Land, in desert, Antelope Valley, $275 acre. 805-943-4085.

Baby Carriage, twin, converts to stroller, $25. 213-886-2534.

Bicycle, ladies' 26" Schwinn, 3-spd., $50. 714-892-1945.

Stereo, Sony AM-FM w/cassette recorder & playback, det. spkrs., walnut, $150. 213-545-3843.

Horse, Welsh gelding, 13 hands, for experienced rider, $150. 714-539-6203.

Living-Room Set, 2-pc. Kroehler, sage green, 6′2" cush. divan, T-cush. chair, $135. Other items. 213-670-2564.

Motorcycle, 1970 Honda 100 Scrambler, extras, $285. 213-476-1842.

Pictures, Japanese origs., color, framed, 8"x10", Geisha girl subj., 3 sets, $130. 213-326-0124.

Dress, square dance, size 14, turquoise w/ silver, $5. 213-325-6626.

Engine, 1962, recent o/haul, fits 1961-62 Lincoln, Ford, or Mercury, $75. 213-326-3620.

Tape Deck, player, radio comb., Grundig, 2-track, tapes, mike, spkrs., $40. 213-556-2728.

Communications Receiver, Hallicrafters SX-99, $45. 213-377-4623.

Lot, ¾ acre, so. side of Elsinore o/looking lake, water & elec. in, level bldg. site, $6,000. 213-530-3046.

Toolbox, Kennedy, mikes, blocks, gages, other tools, $75 or sell sep. 213-376-9875.

Floatation Wheels, & 11.50-16 high tires mounted on widened Porsche whls., $85 pr. 213-821-4180.

Camera, Cannon FT-Q1, f1.2 lens, leather case, tripler, 2 mos. old, $160. 213-371-4523.

Sailboat, Lido 14, 24′ center board, trailer w/bearing buddys, cover, new shrouds & forstay, $925. 213-325-5705.

Crib, spring & mattress, mattress used 1 wk., $20. 213-644-3742.

Sailboat, 32′, Col. Sabre, fully found, $4,750 or partnership. 714-675-1977.

Shotgun, 28 ga. single shot Winchester, $32. 213-328-1114.

Trailer, 52′ Sahara, expanded living rm., screened porch, cabana, $3,600. 213-324-9476.

Miscellaneous For Sale

Saw, Craftsman 9" radial arm, blades, complete set of molding blades, adjust. dado blade ¼" to ⅞" wide, stand, $150. 213-534-2464.

Sewing Machine, portable, case, straight stitch, International, $25. 213-675-8031.

Bicycle, 27" white Peugeot, 10-spd., $100. 213-831-9020.

Carpeting, 45 sq. yds., green, $100. 213-378-4639.

Wheelchair, folding, $65. 213-833-5515.

Club Chair w/ottoman, off-white, custom made plastic cover, $25. 213-532-6175.

Pups, Chihuahua, AKC papers, males & females, fawn colored, $50. 213-866-1276.

Refrigerator, Hot Point, 11 cu. ft., coppertone, $60. 213-328-7571.

Sectional, 8′, turq., & love seat, $40. 213-645-5516.

End Tables or commodes, 2 Danish walnut, never-mar tops, $15 ea. 213-541-3000.

Trombone, Getzen, B flat, case, $20. 213-370-6896.

Enlarger, 2¼ sq. to 35, sharp lens, $25. 213-327-4267.

Snow Chains, 3 sets, $7.50 ea. 213-676-6449.

Acreage, Oregon Dream Ranches, 20 acres ea., $275 acre. 714-525-3816.

Cemetery Lots, 2, Inglewood Cemetery, Avalon tract, $300 ea. 916-459-3333.

Acreage, 2½ acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, $6,500. 714-673-7752.

Couch, 8′, gold, & 2 green chairs, $75 or sell sep. 213-671-4902.

Cat Run, or small dog, wire, 4′x8′x4′, $16. 213-867-1479.

Ski Boat, 16′ Esquire, Merc. 1000, cover, trailer, ski equip., $1,895. 213-325-5005.

Recliner, leather, brown, $15. 213-675-6668.

Piano, George Steck baby grand, dk. mahogany, $600. 213-378-1771.

Camera, 35 mm Pentax Spotmatic II w/1.4 lens, leather case, latest model, used twice, $199. 213-370-8001.

Sofa, convt., dble. bed, black w/walnut legs, $50. 213-641-8355.

Motorcycle, 1965 305 Honda Hawk, $290. 213-376-4341.

Motorcycle, 1968 Triumph Bonn 650, dual carb., chrome, $850. 213-372-7894.

Bicycle, Schwinn, 24", hand brakes, 3-spd., boy's, $40. 213-329-2842.

Surfboard, 9 Sears Sportsflite, $50. 213-329-1861.

Sofa, 3-pc. sectional, $150. 213-832-3502.

Accordion, 120 bass, white Frontalini, mus. stand, $200. 213-679-4442.

Bookcase, 30" x 74" w/sliding plate glass doors, $20. 213-296-1238.

Sailboat, Islander Bahama, 24′, fully equipped, motor, bath & dinghy, $4,395. 213-675-6206.

Refrigerator, 1967 Hotpoint, 14 cu. ft., $60. 213-541-1423.

Gun, Frontier Colt single action, new mfr. 38 Special, $125. 213-375-4312.

Childcraft Series, 15 vols., $50. 213-831-6567.

Home, S. Gardena area, 3-bdrm., 2 baths, family rm., covered patio, sprinkler sys., all bltins, cpt., gas b-b-q, lge. corner f/place, $35,000. 213-323-3796.

Washing Machine, Westinghouse, approx. 8 yrs. old, $30. 213-324-7059.

Crib, w/mattress, white, $20. 213-679-5506.

Dinette Set, white wrought-iron table, 30" x 48", glass top, 4 chairs, gold vinyl, $85. 213-377-1094.

Home, 3-bdrm., East Torrance area, 1,100 sq. ft., 1¾ bath, cpts., dps., fenced back/yd., 2-car det. gar., $30,500. 213-320-6388.

Wanted to Buy

Hair Savers, old, napkin holders, salt celars, cut glass & crystal, reasonable. 213-371-7711.

Honda, 1969, 350 cc Super Sport, up to $700, or $500 & 1964 Honda, 250 cc, consider other brand. 213-676-1018.

Duster, 340 or Demon, auto. trans., pay cash. 213-329-1705.

Fireplace Screen, brass, reasonable. 213-242-9723.

Stroller, twin type, w/7 wheels, in good condition. 213-863-3900.

Engine, 140 h.p. Corvair, comp. or part. 714-537-1454.

Bicycle, men's, 5 or 10-spd. Derailluer, Schwinn. 213-378-4567.

Cabinet Bed, twin-size. 213-641-1880.

Loud Speakers, 10" to 12", used, Raw, 3-way, JBL or equiv. 213-679-7378.

For Trade

Chrysler, 1962 Newport, 4-dr., auto. trans., p/b, p/s, 56,000 mi., trade for 1961-1963 Volkswagen, in good condition. 714-871-2598.

Free (To Be Given Away)

Pups, 6, born about Christmas, mother part cocker spaniel. 213-630-3888.

Peekapoo, 6 mos. old. 213-671-1660.

Dog, to adult home, silky female, papers. 213-542-4091.

Rentals Offered

Vacation Home, new, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

House, Cerritos, 4-bdrm., dng. & family rm., cpts., dps., heated pool, 2,350 sq. ft., $395 mo. 213-860-9271.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patios, f/place, $30-$40 w/end, $70-$90 wk. 213-868-8040.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

House, 3-bdrm., den, 2 baths, furn., washer, dryer, d/washer, 4 blocks to Northrop, $250 mo. 213-833-2512.

Cabin, Big Bear City, 2-bdrm., 1 bath, $40. 213-320-6486.

Cabin, near Arrowhead & Running Springs, sleeps 4 to 5, $30 w/end. 213-370-7105.

House, 2-bdrm., fenced yd., gar., in Harbor City, adults, refs. required, no pets, $160 mo. 213-326-5566.

Condominium, 2-bdrm., furn., Palm Springs area, heated pool, $100 wk., $60 w/end. 213-327-8994.

Apt, unfurn., new cpts. & dps., 2 entrances, closed gar., adults, stove & refrig. if req'd., near 117 & Crenshaw, $130. 213-756-3669.

Rentals Wanted

Room w/board, 5 days wk., for quiet gentlemen till family moves down in June. Box 301.

Child Care

"Grandma" wanted to sit 5½ yr. old boy when ill or has vacation days from school. 213-378-1405.

Personals

I wish to thank my many friends & fellow workers for the wonderful gift & party on my retirement. HARRY TOMS.

Ride Wanted, 7:30 a.m.-4:12 p.m., Yorba Linda area to Bldg. I, Hawthorne. 714-524-0140.

Ride or car pool, 8 a.m.-4:42 p.m., 135th & Spinning Ave., Gardena to Engineering Science Center. 213-323-8213.

I would like to thank each & every person who helped to make my retirement from Northrop even more pleasurable than anticipated. HARRY BELCHER.

A special thanks to our friends in Engineering & Finance who were so thoughtful & considerate in the loss of our son, James. MAE & JACK LYLE.

To all my friends at Northrop, I would like to give my thanks & appreciation for the wonderful retirement party & gifts. MARGE & GORDON JARVIS.

We wish to thank NRC & fellow employees for the beautiful flowers & kind expressions of sympathy in memory of our daughter, Phyllis. JIM & ALICE SMITH & FAMILY, PAUL & SUSAN DUNAGAN.

Have gone, will travel, thanks for the terrific send off. GORDON GRIMM.

Interested parties to form family-type camping & touring caravan on circle trip to Bahia De Los Angeles, Baja, Calif., during Easter vacation, must have traction type vehicle. 213-353-0797.

It has been a great pleasure to have worked with so many nice people during my 23½ years at Northrop. Thank you for the retirement parties & gifts. HUGH WILSON.

I want to thank all my friends who helped in time of need while in the hospital & recovering at home. SONNY HERRON & WIFE, JUDY.

Strawberry, boysenberry & blackberry plants wanted free. Will take up unwanted plants. 213-679-5177.

My grateful thanks to all of you who helped & planned my retirement party to make it such a memorable event. And from now on—gone fishing. GEORGE SCHWALM.

For Sale or Trade

Tachometer, electronic, 3¼" illuminated, 240° dial, 4, 6, 8 cyl., $15 or trade for .22 rifle. 213-941-1865.

Drafting Machine, K & E, 24", & scales, $65 or will trade for gun, 45 cal. auto. 213-675-5258.

Rubye Ratliff Heads List Of Service Pin Recipients

Rubye Ratliff, an Engineering Release clerk in Data Control, Palos Verdes, is the lone Electronics Division employee qualifying this month for award of a Northrop 25-year service pin.

Mrs. Ratliff has spent her entire career in Data Control, beginning in 1947 with the then Norair Division. She also has worked at several outlying Northrop facilities including those at Palmdale and Ontario.

Other employees receiving service pins this month are:

Hawthorne

Twenty years: Boyce Ahlport, Microelectronics; Stanley Dow, Project Control unit; and Helen Grogan, Reproduction and Data Services.

Fifteen years: Harry Buxton, Herb Stark, Stanley Greene, Wilfred Moore and Lewis Spinney.

Ten years: Wayne Ardinger, John Graveline, Roger Schilling, Marvin Zuckerman and John Stramel.

Five years: Leslie Puncher, William Wood, Jerald Colmery, Frank Bogdanoff, Knox Johnson, Marcella Branch, Wilfert Wilson and Ben Anderson.

Palos Verdes

Twenty years: Kenneth Potter, Product Support unit.

Fifteen years: John O'Connor, Don Bodewig and Glenn Brandon.

Ten years: Ross Chiles, Al Taglieri, R. E. McNew, Ralph Hare, June Boyle and Alfred Nunez.

Five years: Robert Noe and Irene Harris.

Previously not reported were those employees receiving service pins in December. They are:

Hawthorne

Fifteen years: John Lavender, Melvin Nathan and Lou Villalba.

Ten years: Bernard Davis and William Pryor.

Five years: Clairborne Howard, Robert Fraser, Donald Meyer, Lee Finch and William Finch.

Palos Verdes

Twenty years: Walden Schultz and B. H. Lalande Jr., both assigned to the Systems Engineering group.

Fifteen years: E. S. Hunter.

Ten years: Robert Dolan, Ted Beeson and J. L. McDade.

Five years: Betty Wenger.

MRS Performs 'Beyond Expectations' During Flight Tests at Corpus Christi

Flight testing of Electronics Division's new Maintenance Reporting System (MRS) was completed recently at the U.S. Army's Aeronautical Depot Maintenance Center, Corpus Christi, Tex.

The flight test program was the final phase of an 18-month contract awarded the division by the U.S. Army Aviation Systems Command. Earlier phases included equipment modification and operation of the system in test cells.

According to John Nakakihara, engineering specialist on the scene at Corpus Christi, the MRS was highly successful in detecting both known and unknown maintenance discrepancies.

"The MRS performed well beyond our expectations," he said. "Our concept also attracted a lot of interest during the program and drew many visitors from the other military services."

The flight portion of the program was carried out aboard two U. S. Army UH-1 helicopters.

The MRS was developed by the Systems Status Monitoring group. It is designed to fulfill the Army's need for a system which will provide automatic inspection and diagnostic maintenance data for first line aircraft.

Key Northrop personnel assigned to the MRS program are Bob Butcher, program manager; Gordon Click, Bob Miller, Russ Kirby and Rudy Modster.

STRATEGIC

(Continued from page 1)

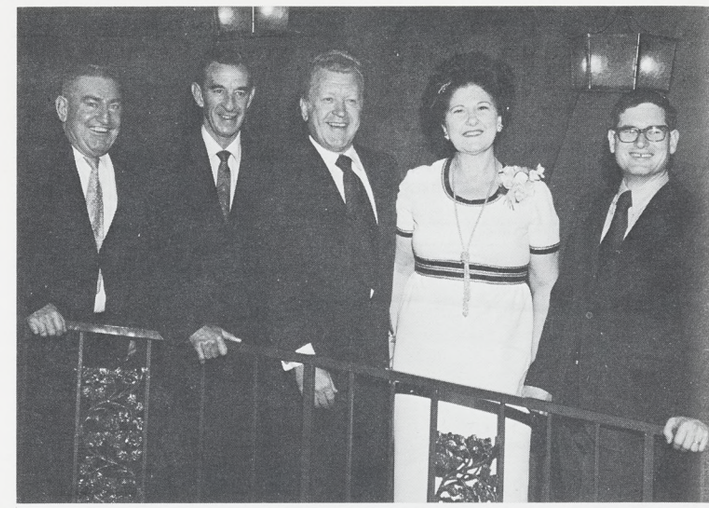
Products Department, headed by Dave Ferguson, vice president and manager, is a major factor in Northrop's effort to "broaden its involvement in this sophisticated technology area which is the backbone of our national defense posture."

PPD is currently under contract in a number of strategic programs, including the USN Polaris/Poseidon, the USAF's Minuteman and B-1 programs.

NRC

(Continued from page 1)

The evening concluded with the presentation of a traditional gift to Mrs. Stubblefield, who served the past year as president of the NRC Auxiliary.



NEW NRC OFFICERS FOR 1972
General Manager Ross F. Miller, center, with, from left, Frank McGinley, Dick Reamer, Dorothy Baldwin and Ed Sterbenz. Not shown is Marian Owens.

NRC INSTALLATION

PHOTO HIGHLIGHTS

PAST NRC PRESIDENTS AT INSTALLATION
From left, Don Caughlin, Otha "Stubby" Stubblefield, Glen Brannum, Dick Paramore, Joe Kalina and Dick Teel.

HAVING A GOOD TIME
Conversation took up a good part of the evening at NRC officer installation. Leaning over the table in right center of photo is George Chalmers, vice president and manager, Financial Management Department.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

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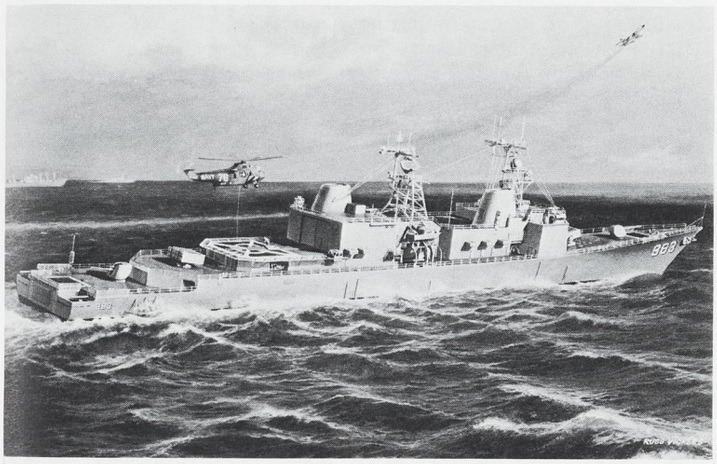


ARTIST DRAWING OF U.S. NAVY'S NEW SPRUANCE-CLASS DESTROYER

Litton Selects Omega for Use Aboard New Destroyers

Litton Industries has awarded Electronics Division a multi-year subcontract to produce automated Omega navigation receivers for 30 U.S. Navy Spruance (DD-963) class destroyers.

The automated Omega receiver is an updated model of the division's AN/SRN-12 receiver, currently operational aboard more than 140 U.S. Naval vessels around the world.

Some Changes

According to Vic Moore, program manager, the AN/SRN-12 has been modified to interface with the DD-963's computer systems which will permit a real-time readout of the destroyer's present position.

In addition, the new system permits comparison of Omega readouts with other position-fixing aids aboard the ship.

The Spruance-class, the first general purpose destroyer production program since the late 1950s, will be the backbone of the U.S. Navy's destroyer forces in the 1970s and beyond.

The primary mission of these ships is anti-submarine warfare, including operations as an integral part of the carrier task forces.

The destroyers were designed by Litton Ship Systems' marine technology center at Culver City.

LIBRARY SAYS ALL WELCOME

Dennis Martin, Holly Park librarian, has extended an invitation to Navigation Department employees to visit the library during the lunch period.

Mr. Martin said the library has a wide selection of books for both reading and research projects. The facility is located at the corner of 120th and Van Ness Streets.

Electronics Expands Into Medical Systems

Electronics Division has taken several steps over the last two months to gain a foothold in the rapidly expanding medical data systems market.

The company has acquired, for cash, Berkeley Scientific Laboratories, Berkeley, Ca., and Predicitive Medical Systems, in Palo Alto.

"Our acquisition of BSL is an expansion into activities which are technologically related to our current operations," said Ross F. Miller, general manager. "The PMS acquisition complements and strengthens the BSL product line."

BSL is a leading designer and manufacturer of advanced clinical pathology systems for hospitals, laboratories and other users of high technology medical systems.

PMS, which has been merged into BSL, is a leading manufacturer of computerized medical history and physical examination data acquisition and processing systems.

"The combination of these two organizations significantly enhance our basic position for penetration of the computerized medical systems market," Mr. Miller explained. "They also serve to expand our commercial business," he added.

BSL will be operated by Northrop as a wholly owned subsidiary reporting to the Electronics Division.

(See EXPANSION, page 6)

Division Tops CMIP Target

Electronics Division exceeded its Cost and Management Improvement Program (CMIP) goal for the "short" six-month fiscal year by a whopping 83 per cent, according to Clint Ching, CMIP coordinator.

The division realized a net savings of $321,000, well above its goal of $175,000, in leading all Northrop divisions and subsidiaries in CMIP savings percentages.

Mr. Ching said that CMIP savings are accumulated from either new or improved management techniques developed by supervisors and salaried personnel.

TO EXPLORE COMMERCIAL MARKET

Northrop, GTE Sylvania Sign DIGISPLAY Agreement

Northrop Corporation's Electronics Division has selected the Electronic Tube Division of GTE Sylvania to engineer for production, for the commercial market, Northrop's alphanumeric DIGISPLAY device, Dr. Harper Q. North, manager of Northrop's Electro-Optical Department, has announced.

DIGISPLAY is Northrop's trademark for a flat, digitally-addressed, area display which the company has had under development for several years. The alphanumeric version which will be engineered for production displays 512 characters selected by digital control of metallic patterns on insulating substrates.

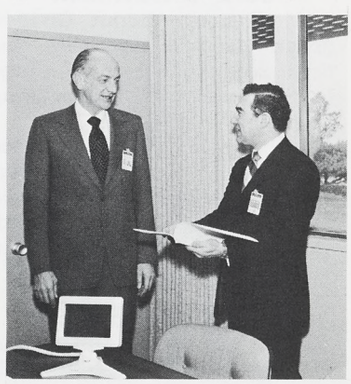
The device's flat glass envelope is approximately seven inches wide and five inches high with a thickness of about one and one-half inch. Its inherent features include high brightness and a geometrically stationary format which can be expanded as required into displays accommodating large numbers of characters.

The alphanumeric information can be displayed in monochrome or multiple colors. Simplicity of electronic address as compared with other flat panel displays is an outstanding feature.

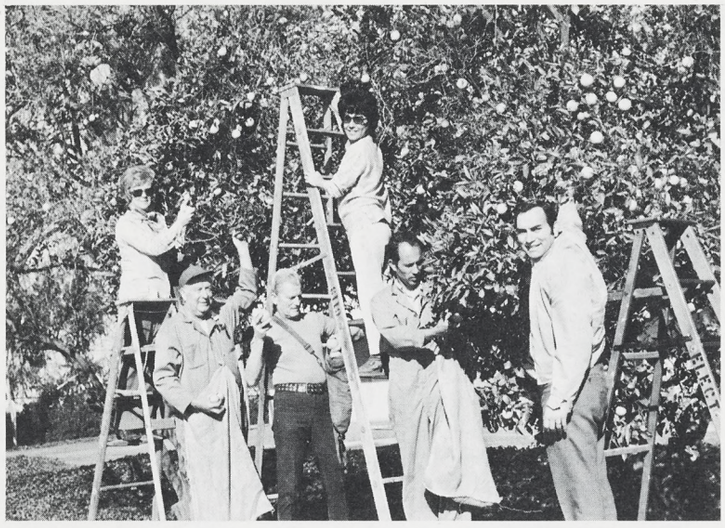
Versatile

The device has numerous applications in the information display field.

The Northrop/GTE Sylvania program will establish criteria for volume manufacture of alphanumeric DIGISPLAYs following the present production engineering phase. During this phase the 512 character display will be demonstrated to manufacturers in the computer display field and to the various government agencies served by Northrop.



CHECKING AGREEMENT
Dr. Harper Q. North, left, and Edmond N. Elowe, manager, New Products, GTE Sylvania Electronic Tube Division.



HARVEST TIME—When the Electro-Mechanical Division facility at Anaheim was built, orange trees from the grove that once covered the site were left standing as landscaping. Now when the fruit ripens members of the NRC Horticulture Club harvest the crop and sell it to interested employees. Shown at work are, from left, Betty Schulz, Bert Beard, Jim Auest, Sefie Garcia, John Barth and Joe Saline.

Travel Club Maps Plans

Four group tours for the 1972 season will be discussed by the Northrop Travel Club at an 8 p.m. March 30 meeting set for the NRC Clubhouse.

A three-week, eight-country visit to Europe is planned for Sept. 25 through Oct. 15 at a price of $895. Alaska will be the destination of an 11-day tour Sept. 26 through Oct. 6 with prices starting at $449. And a 10-day combination air-cruise visit to the Caribbean is set for Nov. 30 through Dec. 9 at a price of $469. Rounding out the year will be NRC's trip to Hawaii over the long yearend holiday.

STAMP CLUB TO PROCESS COVERS

Northrop Stamp Club has made arrangements to process first flight covers for two Northrop aircraft scheduled to make initial flights this year—the A-9A and the F-5E.

The covers will have a cachet commemorating the event along with an Edwards AFB cancellation. The club will offer the covers for sale to employees soon after each flight.

Meeting the third Monday of each month, the Stamp Club will feature for March a new film titled "Stamps: a Nation's Calling Cards."

SME CHAIRMAN

Al Siggson, Aircraft Division design standards specialist, has been elected chairman of Chapter 84, Society of Manufacturing Engineers.

Mr. Siggson, recipient of the SME President's Outstanding Service Award in 1967, has served the chapter as treasurer, third, second and first vice chairman and in committee assignments.

CODE CLASSES

Northrop Radio Club has launched a new series of code classes, open to all interested employees. Classes are held at 7:30 p.m. each Wednesday in NRC Clubhouse, Hawthorne.

ICE CAPADES

A block of 500 "best in the house" reserved seats for the 5 p.m. April 23 production of Ice Capades at the Los Angeles Sports Arena have been reserved just for Northrop families.

Regular ticket outlets are offering the $5 tickets for just $3.50 each.

Shareholders Told Credit Union Enjoys Good Year

Shareholders attending the Feb. 1 annual meeting of the Northrop Credit Union heard officers and directors report a successful year of operation during 1971 in which total assets top $10 million for the first time.

Reports revealed that, despite current economic slowdowns in which the number of loans were down, the total of outstanding loans granted through the Credit Union increased. Above all, this reflected a policy of expanding loan possibilities.

Good news came when the Credit Union noted that first mortgage on home loans would be reduced from a current nine per cent to a new seven and one-half per cent rate. Also, members will now be able to obtain loans on new boats. Additional studies are in progress to expand loans into other areas.

Shareholders elected as directors: Harvey L. Cook, L. L. Cripe, M. B. Delaney, R. D. Hampton, J. J. Richardson and W. D. Schramm of the Aircraft Division; R. A. Lindsey and J. S. Penrod of Electronics Division; and B. M. Slotnick of Northrop Data Processing. The board named Mr. Lindsey president, Mr. Cook vice president, and Mrs. Delaney, secretary-treasurer.

Also elected was a credit committee comprised of Margaret Faubion, and R. C. Pontious of Aircraft and W. H. Justice of NDP, the chairman. The supervisory committee elected was comprised of S. D. Parr, Electronics, A. W. Johnson, Electro-Mechanical, E. R. Foord and H. H. Sweet, Aircraft, and T. A. Hruska, NDP, chairman.

Subordinate officers named are: Florence Montgomery, assistant treasurer; Catherine Walker, cashier, Helen Walker, membership chairman, and Margaret Faubion and R. C. Pontious, loan officers.

JACK BEHRENS IAE FELLOW

Jack Behrens, Aircraft Division, was inducted last month as a Fellow of the Institute for the Advancement of Engineering.

This honor recognizes those engineers who have contributed to the advancement of the engineering profession in Los Angeles.

Mr. Behrens was nominated for the honor by the Southern California Section, American Association of Cost Engineers, an organization he has served as president, vice president and director in addition to numerous committee chairmanships.

NEW OFFICERS of the Northrop Retirement Club, President Harold Barbey, Vice President Margaret Bruchez, Secretary-Treasurer Jeannette Kaupp and Segeant-at-Arms Alvera Hayes, are making plans for the group's annual reunion in May.

HOW OLD, PECK?

Peck Campbell, Electro-Mechanical Division, came to work with Northrop in 1956 and has been on the job ever since. But according to his reckoning it will be another four years before he can legitimately qualify for his Northrop five-year service pin.

You see, he hired in on February 29, 1956, and only has an anniversary every leap year.

His comment: "I wish I only felt four years older."

TICKET CHANGE

Northrop personnel holding Pacific Drive-in theatre discount tickets purchased in-plant must use those tickets before March 31.

Toward the end of March Northrop outlets will offer new discount tickets reflecting a price increase. These ducats sell for $1.25 and represent a savings of 50 cents per ticket.

NAVY OPENINGS

Northrop service veterans with certain skills who may be interested in earning extra cash on weekends have been invited to investigate the opportunities offered by the U.S. Naval Air Reserve at Point Mugu.

Information is available through the Recruiting Officer at Point Mugu. Either write or call collect, (805) 982-8744.

UNITED STATES SUPREME COURT, WASHINGTON

UNITED NATIONS HEADQUARTERS, NEW YORK

George A. Fuller Company Founded After Civil War

The George A. Fuller Company, acquired by Northrop in late 1971 as an expansion of the company's commercial business interests, is one of the nation's leading, and oldest, building construction firms.

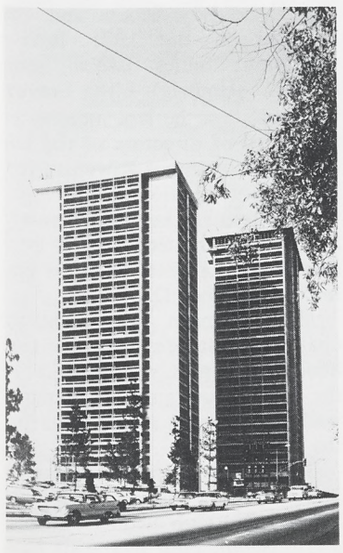
Because the Fuller heritage, dating back to the Civil War reconstruction period, is now a part of Northrop history, the News is presenting a pictorial essay of some of Fuller's building accomplishments to better acquaint Northrop employees with this fine organization.

Among historic buildings constructed by Fuller in Washington, D.C., are the Lincoln Memorial, U.S. Supreme Court, National Cathedral and many others. In New York the list includes Pennsylvania Station, the Flatiron, Plaza Hotel, Union Carbide, Time/Life buildings, the New York Coliseum, United Nations Headquarters and Roosevelt Raceway.

Californians should recognize such Fuller structures as the Century Plaza Hotel, Century City Towers, Marineland of the Pacific in Los Angeles, the Salk Institute in Torrey Pines and the Bank of America Headquarters in San Francisco.

GENERAL MOTORS, NYC

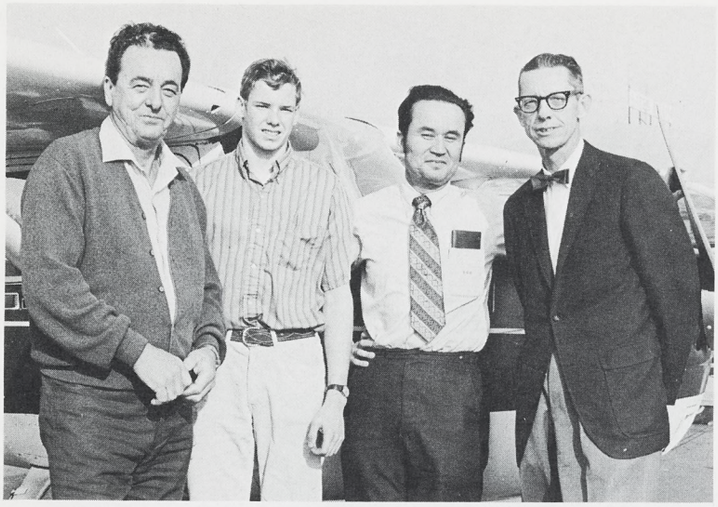
UNION CARBIDE, NYC



CENTURY CITY TOWERS

LINCOLN MEMORIAL, WASHINGTON

ALUMINUM CO. OF AMERICA



HE EARNS PRIVATE LICENSE ON 17TH BIRTHDAY
From left, A. Gabardi, Bill Johnson, Ron Kramer, Johnny Johnson.

Bill Johnson Celebrates 17th Birthday By Earning His Private Pilot's License

February 10 is a day to remember for a Northrop son, his proud father, and a third Aircraft Division employee who played a key part in making it possible.

On that day Bill Johnson celebrated his 17th birthday by obtaining his private pilot's license, a goal he has sought after one year of flying as a student pilot. Bill is a junior at South High, Torrance, an "A" student who was quarterback and most valuable player on the school's junior varsity football team as well as a varsity letterman at defensive safety. He aspires to attend the Air Force Academy.

His father is H.A. "Johnny" Johnson, a retired Air Force test pilot who flew Northrop P-61s and the N9M wing. For four years he held the international 1,000 kilometer closed course speed record, set in a P-80 during his 10-year Air Force career.

Ron Kramer, Tactical Operations Analysis, was Bill's flight instructor.

Weyl's 'Spirit' Sweeps Contest

A scale model replica of Lindbergh's "Spirit of St. Louis," designed by one Aircraft Division man, built and flown by another, has garnered its share of attention lately.

Gus Morfis, Design Integration, is the designer. Carl Weyl, manager of F-5 Aerodynamics, built the "quarter midget" radio-controlled model and flies it in competition.

These members of the Northrop Model Airplane Club were on hand in December for competition with the Orange Coast R/C Club in Fullerton.

Mr. Weyl completed his model just before the contest and flew it for the first time that day. He swept to victory in every heat entered, then won over-all honors in a flyoff. The model is featured in the April edition of the magazine R/C Modeler.

WALTI TABBED

John Walti, Aircraft Division Value/Producibility engineer, was installed recently as treasurer of the Association of Santa Monica Bay Yacht Clubs.

Mr. Walti is currently staff commodore of the Palos Verdes Yacht Club. At a recent installation dinner at the Del Rey Yacht Club, Mr. Walti was awarded a plaque and new burgee for his highly successful coordination of the 1971 and 1972 racing calendars for the Santa Monica area.

CARL WEYL AND HIS 'SPIRIT OF ST. LOUIS'

Beautiful Writing Helps Revive Whaling Memories

Betty Corson, wife of Bob Corson, Electro-Mechanical Division, Target Detection Devices, is helping keep alive memories of the nineteenth century American whaling industry.

Mrs. Corson's calligraphy — the art of beautiful writing — has been used to explain exhibits in an historical exhibition at Whalers Village, Kaanapali, Maui, Hawaii. The descriptions are facsimiles of entries from the captain's logs of old whaling vessels.

Mrs. Corson first became interested in calligraphy when, at the age of 12, she happened to use an old style dip pen in a post office.

She kept practicing just for fun and several years ago began inscribing certificates, diplomas and place cards as well as wedding invitations and announcements.

In 1970, some of her work was seen by Edward Carson Beall, a Palos Verdes architect who was then designing the Whalers Village and Museum. He explained the project to Mrs. Corson. The artifacts in the museum were to be displayed in cases spread throughout the village and were to be mounted on tile panels.

The problem was whether or not she could write on the tiles, in what may be described as "old fashioned copperplate hand," using glazing stain instead of ink. The tiles would then be fired.

Numerous trials and experimental firings finally produced the proper mixture and the writing began in September of 1970. Some 15,000 words later, the work is now nearing completion.

Mrs. Corson continues her calligraphy between her teaching at Los Angeles' James Fenimore Cooper Opportunity School and doing graduate work at California State College at Long Beach.

CALLIGRAPHY

REUNION SET

Dinner reservations for the annual Northrop Retirement Club Reunion May 17 at the Western Avenue Golf Clubhouse, 1930 120th St., are now being accepted by Personnel Activities.

The cost is $3.50 per person with a deadline of May 10. No tickets will be sold at the door. Social hour begins at 3 p.m. with dinner at 6 p.m. Checks are to be made payable to Northrop Retirement Club.

Johnson Family Leads Busy Life

Staying involved in community activities is the rule for members of the family of Harold L. Johnson of Aircraft Graphic Operations.

Mr. Johnson has just been named chairman of the Los Alamitos Planning Commission for 1972. He currently serves as acting chairman of the Rossmoor Highlands Homeowners, as assistant district commissioner, Sunset District, North Orange Council of the Boy Scouts and was manager of the 1971 reserve champion Phillies baseball team in the St. Hedwig's Little League.

In addition, he is a member of the board of directors of the Los Alamitos-Rossmoor Kiwanis Club, Parents Information and Advisory Committee, Lee Elementary School, and the Community Education Council, Los Alamitos Elementary School District.

Mrs. Johnson was publicity chairman last year for the Girl Scouts, a crafts work leader in the Cub Scouts and has prepared wall murals and art projects for the PTA.

The Johnsons have eight children. Four of them are Boy Scouts, two Cub Scouts and one a Girl Scout. Four of the six boys in the family carry paper routes.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Olds 88, 1960, radio, p/s, p/b, $260. 714-637-7667.

Oldsmobile, 1962, 4-dr. sedan, recently painted, auto. trans., p/b, p/s, $300. 213-296-1238.

Barracuda, 1970, 440 c.i., 4-spd. trans., pwr. d/brakes, p/s, posi-traction, FM-AM radio, $2,500. 213-676-3692.

Austin Healey, 1967 Mark 3000, convt., new paint, wire whls., $1,700. 213-939-3387.

Lincoln, 1963 Continental, 53,000 mi., $500. 213-323-9003.

Ford, 1965 Gal. 500, r/h, p/s, a/c, new tires, batt., $850. 213-635-7843.

Javelin 304, 1970, b/seats, r/h, 3-spd. floor shift, p/s, $2,115. 213-851-1376.

Buick, 1968 Wildcat custom, a/c, p/b, p/s, r/h, stereo tape AM-FM, $1,950. 213-757-2690.

Chevrolet, 1966 Malibu, 4-dr., p/b, p/s, auto. trans., r/h, 77,000 mi., $550. 213-372-1546.

Volkswagen Bus, 1968, radio, new tires & clutch, $1,695. 714-962-3112.

Station Wagon, 1960 Chevrolet, $295. 213-374-4235.

Toyota, 1969 Corona DeLuxe, new motor & clutch, $995. 213-325-5441.

Station Wagon, 1963 Chevrolet Impala, a/c, $325. 213-377-6658.

Pickup, 1970 Ford Ranger, w/shell camper, auto. trans., p/s, 41,500 mi., min. bid, $2,045. Credit Union ext. 1117, 5048.

Buick, 1962 Skylark, r/h, a/c, $295. 213-679-5668.

T-Bird, 1955, $1,800. 213-677-8410.

Volkswagen, 1965, $650. 213-327-2831.

Van, 1961 Ford, 289 Cobra eng., inside completely finished, $800. 213-378-9741.

Pontiac, 1962 Bonneville, reblt. eng., $350. 714-892-6862.

Station Wagon, 1966 Ford Fairlane 390, p/s, p/b, a/c, stereo tape, extras, $800. 213-324-1908.

Porsche 1700S, 1960 roadster, '61 trans., $1,500. 213-374-0510.

Mustang, 1967, 6 cyl., 63,000 mi., $995. 213-831-9707.

Monte Carlo, 1970, full power except windows & seats, 35,000 mi., still under warranty, $200 for equity & take over pymts., $2,500 approx. bal. 213-347-4196.

MGB, 1968, o/drive, wire whls., AM-FM radio, $1,200. 213-388-2704.

Mustang, 1967, wrecked, 25,000 mi. on eng., $300 or sell parts. 213-677-0203.

Pickup & camper, Chevrolet, complete or sell separate, $1,500. 213-941-3804.

Corvair, 1961 Monza, 2-dr. cpe., fold-down rear seat, 4-spd. trans., 110 h.p., radio, 67,000 mi., $150. 213-541-1625.

Opel Kaddet Rallye, 1969 1900, $1,325. 213-323-1929.

Miscellaneous For Sale

Couch, green print, coffee table, end table, $50. 213-372-1381.

Bookcase Headboard, maple, king size, antique hardware, $50. 714-830-3048.

Trolley Hoist, 1½-ton, runs on straight or curved 5″ I-beam, $95. 213-457-9600.

Hide-A-Bed, w/mattress, $125. 213-675-7673.

Heater, 100 btu forced air, $125. 213-886-2534.

Skis, Head 360's, $95. 213-476-1842.

Bicycles, boy's 5-spd., 22″ & girl's stingray, 22″, $35. 213-378-4639.

Motorcycle, 1963 Matchless, 750 cc, 8,000 orig. mi., $500. 213-671-1660.

Knitting Machine, Sears Orion, dble. bed, w/instruction book & patterns, seldom used, $200. 213-378-1405.

Amplifier, Fender, 2 15″ Lancing spkrs., cabinets approx. 4′ high, 2′ wide, $200. 213-696-7529.

Motorcycle, 1966 Harley Davidson 74, equipped for funeral escort, $1,000. 213-370-1963.

Organ, mod. 1000 Kimball. 2 mos. old, $2,095 or take over $58.14 mo. pymt. for 46 mos. 213-325-3388, 213-835-1754.

Miscellaneous For Sale

Sewing Machine, Domestic portable, $85. 213-863-3900.

End Tables, 2, Danish walnut, never-mar tops, $15 ea. 213-541-3000.

Glass Doors, sliding, frames & glass, 3-panel OXO 12′x7 5/16″, 2-panel XO 9′9¾″x 7′7″ 5/16″ & 2-panel OX 7′10″x7′7″ 5/16″, $125 or will sell sep. 213-275-7341.

Pups, Airedale, AKC, papers & shots, $150. 213-831-6533.

Motorcycle, 1969 Honda CL 125, $225. 213-377-5897.

Acreage, off Palmdale-Victorville Hwy., 5 acres, 10% dn., $13,100. 213-430-1952.

Coffee Table, maple, & end table, antique grey, $5 ea. 213-675-6020.

Coat, mink, autumn haze, ¾ length, $295. 213-347-4599.

Lots, lake view, Isabella, 65x165, utilities, $295 dn., $45 mo., $2,995. 213-635-3127.

Guitar, classical, $70. 213-542-7651.

Divan, w/3 lge. chairs, & 3 end tables, limed oak, $200 or sell sep. 213-670-2564.

Engine, 1968 MGB, 1800 cc, & 4-spd. trans., access., $200. 714-531-6160.

Acreage, 2½ acres, fronting on new Adelanto pvt. airport, M-1, $65 dn., $65 mo., $6,500. 213-378-1026.

Lounge Chairs, wrap around, 2, moss green crushed velvet w/matching ottoman, $150. 213-327-2493.

Air Compressor, w/tank, mounted on whls., 1 h.p. motor, $35. 213-324-6484.

Trumpet, York, $25. 213-370-6896.

Trailer, 16′ Fire Ball, sleeps 7, self-contained, butane ref., $1,195. 213-699-8173.

Typewriter, Remington portable, case, $25. 213-326-1331.

House, Westminster near McDonnell Douglas, Huntington Bch., 4-bdrm., 2 baths, lge. living rm. & kitch., covered patio, 2½-car gar., forced air heat, bltins, new cpts., landscaped yds., rear yard fenced, 5¾% loan avail., $30,500. 714-897-7372.

Camera, 35mm Fl.9 lens 1/500 shutter, coupled range finder, access., $35. 714-535-8232.

Jacuzzi, $150. 213-677-7310.

Acreage, 10 acres, in Apple Valley, near new airport, Silverwood Lake being filled, $15,000. 213-327-3616.

Record Player, McDonald BSR w/base & plastic cover, $40. 213-327-4267.

Commode, 28″ square, fruitwood, $75. 213-545-4697.

Mini Bike, Taco, new motor just installed, $75. 213-377-1074.

Typewriter, IBM elec., $165. 213-673-5614.

Chair, lemon yellow, $70. 213-326-0124.

Tape Recorder, Sony TC50 cassette, w/auxiliary pwr. supply, $60. 213-322-1892.

Room Divider, deluxe vinyl accordion-type, complete w/track & locking rail, 13′ long, beige, $50. 213-375-3322.

Motorcycle, 1968 Honda 350, $425. 213-328-3383.

Boat, 14′ Cal-Built, 25 h.p. Evinrude motor, trailer w/spare whl. & tire, sun top, eng., boat cover, $375. 213-676-7043.

Hardtop, 1963-67, for Corvette, $150. 213-631-3008.

Water Softener, large, Servisoft, $90. 213-379-3300.

Dehumidifier, Westinghouse, used 1 season, $65. 213-545-7149.

Mobile Home, 1971 Fleetwood, 12′x60′ expando, awning, carport, complete skirting, at Imperial Beach, $600 dn., $7,200. 714-532-2627.

Motorcycle, 1970 Suzuki, TS90 w/100 cc hop up kit, incl. orig. stock equip., $325. 714-633-0328.

Rifle, .222 cal. Rem. mod. 722 w/3 to 9 pwr. scope, ammo, carrying case, cleaning kit, $100. 714-828-7873.

Weightlifting Sets, 2 Weider & York, 15¢ lb. 213-377-5362.

Desk, $25. 213-672-1090.

Acreage, 40 acres, near Santa Maria, $395 acre. 213-370-3821.

Surfboard & water skis, $75. 213-329-1861.

Wonder Horse, $10. 213-679-5506.

House, 4-bdrm., 2 baths, fam. rm., recent paint, fenced, landscaped, covered patio, new bdrm. cpt. & water htr., P.V. area, $46,900. 213-541-2620.

Piano, upright Hamilton, Chicago by Baldwin, $150. 805-482-5451.

Typewriter, Royal, $30. 213-377-1404.

Wetsuit, skindiver-type, nylon lined, small, $10. 213-833-4191.

Miscellaneous For Sale

Commode, chrome, $15. 213-323-5119.

Stereo Cartridge, Shure M91E, $16. 213-377-7913.

Typewriter, standard upright Royal, $15. 213-324-7259.

Acreage, 2½ acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, $6,500. 714-673-7752.

Air Compressor, portable, gages, pressure control switch, stainless steel tank, approx. 3.5 cu. ft. at 40 lbs., $70. 213-831-4087.

Motorcycle, 1968 Honda CL 90, bored to 106 cc, compl. reblt., $190. 213-377-8815.

Acreage, Antelope Valley, prime Los Angeles County, next to Lake Los Angeles, 5-2½ acres, easy terms, $6,900. 213-376-6205.

Skis, Head 360's, 210 length, w/bindings, $30. 213-534-5707.

Direction Finder, Bendix Navigator 500 batt. powered, $45. 213-454-7338.

Chair & foot stool, maple, $15. 213-376-4831.

Acreage, Antelope Valley, flat, accessible, $275 acre. Box 301.

Tent Trailer, Sherwood 1971, elec. brakes, spare tire & whl., take over bal. approx. $1,400. 213-327-2126.

Washer, G.E. auto., 10 yrs. old, $20. 213-632-7603.

Cemetery Lots, 2, in Rose Hills Memorial Park, near Whittier, $500. 213-377-6460.

Motorcycle, Honda Mini-Trail 50, just o/hauled, $150. 213-378-9614.

Living Room Couch, $40. 213-423-1363.

Motorcycle, 1968 Yamaha, 80 cc, elec. starter, $150. 213-288-6833.

Cabin, modern, furn., Lake Gregory, near lake & stores, terms, $10,000. 213-821-8150.

Boat, aluminum, V-bottom, 12′ Starcraft, w/access., $150. 213-596-4215.

Stove, O'Keefe & Merritt, 4-burner, gas, $10. 213-644-9375.

Home, 2-story, new, in horse-zoned area, Newbury Pk., $22,750. 805-498-6356.

Bucket Seats, 2, red, for Corvair, $35. 213-639-7791.

Trumpet, Olds, used 6 mos., 1 yr. old, $100. 213-378-5698.

Motorcycle, 1969 Yamaha 125, less than 500 mi., $350. 213-567-3480.

Home, East Torrance area, 1,100 sq. ft., 3-bdrm., 1¾ bath, cpts., dps., bltins, fenced b/yard, 2-car det. gar., $30,500. 213-320-6388.

Wanted to Buy

Tent Trailer, good condition, under $600. 213-865-5133.

Bicycle, boy's 20″, w/training wheels if possible, good condition. 213-675-6397.

Dodge or Plymouth, 383 c.i.d. block, 426 c.i.d. wedge heads & intake manifold. 213-323-4257.

Skates, sidewalk-type for 4 yr. old, size 8 or 9, used. 213-676-3050.

Stenotype Machine. 213-679-8397.

Motorcycle Helmet, Bell Star. 213-645-6211.

Maintenance Manual, B-35, & armament info or manual. Box 302.

Free (To Be Given Away)

Pups, mixed weimeraner, born 1-1-72, male & female. 213-376-6397.

Dog, mixed poodle, champagne color, approx. 1½ yrs. old. 213-542-2128.

Pups, German shepherd, avail. April 15. 213-324-8704.

Rentals Offered

Home, 2-bdrm., 1 bath, furn. or unfurn., No. Inglewood, lge. lot, 2-car gar., $170 mo. 213-756-1812.

Apt, 3-bdrm., 1½ bath, shag cpts., dps., bltins, room for washer & dryer, encl. gar., 2 children allowed, no pets, $225. mo. 213-676-0044, 213-327-1700.

Apts., unfurn., 1 & 2 bdrm., f/place, pool, patio, security, air cond., s/proofed, shag cpts., bltins, from $195-$275 mo. 213-641-9700.

Apt, 2-bdrm., unfurn., oven & range bltin, cpts., dps., pool, 2 blocks from Crenshaw/Pacific Coast Hwy., $160 mo. 213-325-4580.

Cabin, Big Bear City, 2-bdrm., 1 bath, $40. 213-320-6486.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn., $35 w/end, $100 wk. 213-823-1788.

House, Bass Lake, $150 wk. 213-374-3702.

NORTHROP SON WINS HONORS

Ted E. Holloway, Jr. the son of Geraldine O'Malley of the Aircraft Division, has been named Honor Agent of the quarter by the Liberty National Life Insurance Co.

Mr. Holloway worked for the Aircraft Division three years prior to his present job. His brothers, Tom and Jerry, were also Aircraft Division employees.

Rentals Offered

Cabin, Lake Arrowhead, family only, $125 wk., $55 w/end. 213-831-1745.

Condominium, at Mammoth Mountain, 1-bdrm., sleeps 5, kitchen & linens supplied, $40 w/end, $60 midwk. 213-785-1405.

Condominium, Palm Springs area, furn., 2-bdrm., heated pool, $100 wk., $60 w/end. 213-327-8994.

Apt, 2-bdrm., unfurn., sub. parking, pool, bltins, custom cpts. & dps., 10 min. to Northrop, $175. 213-670-6084.

Apt, 2-bdrm., unfurn., avail. April 22, bltins, cpts., dps., closed locked gar., storage, pool & patio, near El Camino, $165. 213-324-8373.

Child Care

Child Care offered, my home, daily, El Camino College area. 213-324-8428.

Personals

My deepest gratitude to my friends at Ventura for their kindness at the passing of my husband, Dick. SHIRLEE COMBS.

Dressmaking & alterations, references, reasonable. 213-323-1476.

A sincere thank you to everyone at Northrop that helped in making my recovery as pleasant as possible. DAVID HARDMAN.

Ride Wanted, 8 a.m.-4:42 p.m., Crenshaw & 170 St. to Plant I or Plant II, Aircraft ext. 2647, 213-324-5169.

Thanks to all my friends & NRC for the cards & flowers during my recent illness. ROY EVERSZ.

Our most sincere thanks to all of our friends at Northrop for their many expressions of sympathy, flowers & donations in memory of my husband, Glenn W. Thornton. VIRGINIA THORNTON, DAUGHTERS & ALL OF THE FAMILY.

We wish to express our appreciation to everyone for their kindness & thoughtfulness during the illness & loss of our husband & father. MRS. FRANCES KUCK & SON, TOM.

Ride Wanted, 8 a.m.-4.42 p.m., Western & Plaza Del Amo to Aircraft Div., Aircraft ext. 2164. 213-328-6968.

Ride Wanted, 3:42 p.m.-12:12 a.m., Anza & 190th St., Torrance, to Aircraft Div., Aircraft ext. 2267. 213-371-5410.

The years of work & travel for Northrop were most rewarding; the retirement party & gifts were great; thanks to so many friends for so much. M. S. JOHNSON.

I wish to express my gratitude to all of you with whom I have worked & thanks for my retirement party & gifts. OLIVER LAMB.

I wish to express my gratitude to my friends at Northrop & extend my thanks to all for making my retirement party such a memorable occasion. MARIE MURNANE.

We would like to express our sincere gratitude to all our friends at Northrop for their generous contributions & deep concern in the recent loss of our father, Frank R. Diel. LARRY, GARY, MIKE & DANNY, SONS OF MARY ANN DIEL.

Special thanks to all my friends at Northrop for their kind expressions of sympathy & gift to the American Cancer Society in memory of my sister, Naomi Holland. MARQUA DEGONIA & FAMILY.

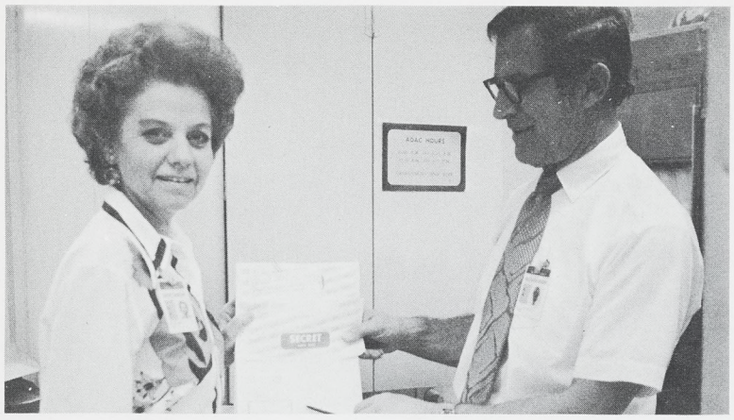
A sincere thank you to my many Northrop friends who remembered me during my recent surgery & convalescence. TED GARVEY.

We wish to extend our hearty appreciation to all for their concern & thoughtfulness during my illness & recovery. HOWIE & BARB WALKER.

For Sale or Trade

Jig Saw, hvy. duty, 18″ belt driven, w/motor, steel base, $30 or trade for drill press. 714-637-4723.

Beach Lot, hillside, w/complete plans for residence, in northern Playa del Rey, $18,500 or trade for dn. pymt. on apt. bldg. 213-821-4180.



R. O. (MAC) McLAUGHLIN and Bea Krapf check contract number on classified document. The related contract or proposal number, or reference to a Letter of Retention Authorization must be displayed on each classified document, preferably in the lower left-hand corner, according to Security officials.

Gordon Phillips Qualifies For 25-Year Service Pin

Gordon A. Phillips, a 25-year veteran, heads the list of Electronics Division employees qualifying this month for award of Northrop service pins. Mr. Phillips is a painter in the Maintenance section at Palos Verdes.

Other employees receiving pins are:

Hawthorne

Twenty years: Hugo Eppolite, Transportation and Mail Services; Bruno Vigo, Manufacturing Control and Requirements; and Donald Anderson, Mechanical Development unit.

Fifteen years: Paul Greek and Richard Washabaugh.

Five years: Louise Lorentz, Alejandrino Martinez Jr., Lloyd Baggett Jr., Patricia Bauer and Nancy Bardon.

Palos Verdes

Twenty years: R. F. Yoern, DIGIFAX™ Product Developmet unit; and Alice Carlson, Major Subcontracts.

Fifteen years: Donald Hansen.

Five years: Harvey Guiles, Harry Fralich, Cherie Narr and Barbara Reynolds.

EXPANSION

(Continued from page 1)

H. W. (Mike) Turney has been named BSL vice president and general manager. Mr. Turney was previously assigned as director of New Business Development for the Navigation Department.

BSL presently has more than 20 CLINDATA™ medical data processing systems in use across the United States and Canada. These include more than six different models to fully meet the varying size and instrumentation requirements for each user.

OUTSTANDING CONTRIBUTIONS to the Apollo program won medallions—made of materials from the Apollo 11 command module—for these Electronics Division employees. Upper photograph, from left, Jim Drevick, Russ Corbus, Alice Carlson, Cliff Davis, Dale Dahlberg, Jim Anderson, Mrs. Dick Dunifer, who accepted in behalf of her late husband; and Ross F. Miller, who made the presentations. Below, from left, Howard Luhman, Daniel R. Winters, Bill McCann, John O'Connor, Myron Oren, Harry E. Fralich, Patrick McCleary and Harvey Guiles. Not shown is Harold Bigelow.

Elmer Baldwin Explains Advantages Of Standards at Engineering Seminar

"Engineering Standards: The Key to Cost Reduction" was the topic of a paper presented by Elmer Baldwin, supervisor of Engineering Standards for the Electronics Division, at the Ninth Annual Engineering Graphics Management Seminar, held Jan. 27-28 at the University of Southern California.

Mr. Baldwin, a well-known leader in the engineering standards field, told attendees that standards are useful to management as an indispensable tool for finding the best solutions to problems concerning engineering practices.

"Standards play a vital part at every point in the complex system of engineering, communication, transportation, production, and exchange which must operate smoothly to produce and distribute large quantities of low-cost goods in an advanced economy," he said.

TOASTMASTERS NAME OFFICERS

Northrop Toastmasters have installed a new slate of officers and presented special recognition awards.

Charles Ferraro, president; Randolph Andrews, VP-education; Fernando Ruecker, VP-administration; Milt Fixel, secretary; Felix Dunnett, treasurer; and Vern Beckner, sergeant-at-arms, are the new officers.

Mr. Ferraro received the Most Improved Speaker and Outstanding Toastmaster trophies, while Hank Greenberger earned the Most Distinguished Toastmaster. Individual speech competition honors went to Dom Odorizzi, Mr. Ferraro, Mr. Ruecker, Mr. Fixel and Fred Semain.

Information on club activities is available through Mr. Andrews, ext. 2500, Aircraft Division, or Mr. Greenberger, ext. 265, Electronics-Palos Verdes.

NRC SCHEDULES ROCK OUT PARTY

Tickets are now available through Personnel Activities for an NRC-sponsored "Rock Out at NRC" beginning at 9 p.m. April 15 at NRC Clubhouse, Hawthorne.

The $3.50 per person tab includes all liquid and fun ingredients. Surprise door prizes will be presented. The POW's will play music for dancing.

Northrop Dakota VP Appointed

New personnel appointments at Northrop Dakota, Inc., have been announced by Ross F. Miller, Electronics Division general manager.

Ed Stone has been appointed vice president and general manager and will be responsible for all operations at the New Town, N.D., plant. Mr. Stone's new duties will be in addition to his regular assignment as director of Operations for the Navigation Department.

J. D. Howell replaces R. J. Davies as plant manager, reporting to Mr. Stone. Mr. Davies is returning to the Navigation Department in a supervisory position.

Mr. Howell, a native of North Dakota, was born and educated in Minot, graduating from high school there and attending Minot State College.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 4 | April 1972

Berkeley Scientific Labs Creates Two New Divisions

Berkeley Scientific Laboratories, Inc., the newly acquired Northrop subsidiary, has been reorganized into two operating divisions, it was announced by Ross F. Miller, corporate vice president and Electronics Division general manager.

BSL now consists of a Medical Data Systems Division, headquartered in Berkeley, and a Business Data Systems Division, located in the Del Amo Financial Center in Torrance.

J. H. Noily has been appointed manager of the Business Data Systems Division. BSL activities in Berkeley remain under the direction of H. W. Turney, vice president and general manager.

The BSL-Torrance operation designs and markets advanced computer-centered systems for specific user needs in accounting, billing or inventory functions. These systems have application to a broad range of both government and commercial users.

Many Users

BSL-Berkeley designs and manufactures advanced clinical pathology and medical history and physical examination data acquisition and processing systems for hospitals, laboratories and other users of high technology medical systems.

"The reorganization of BSL is in keeping with our plan of diversification and penetration into new business markets within the sphere of our established capabilities and technologies," Mr. Miller said.

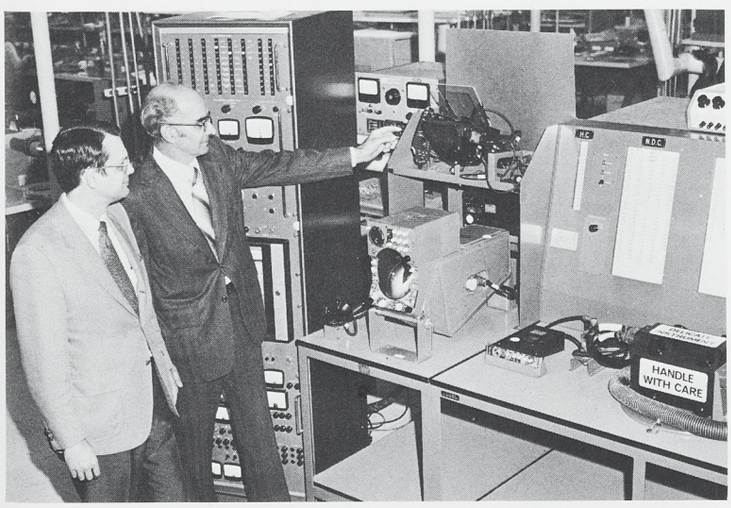
"The combination of these two divisions will provide the base for expansion in the data management field," he added.

Northrop to Build Prototype Fighter

Northrop will build one of two aircraft for the Air Force Lightweight Fighter Program under a $39,078,715 contract. General Dynamics will build the second.

The program will determine the feasibility of developing a small, light weight, low-cost fighter.

In announcing the contract, Thomas V. Jones, Northrop president, said, "Northrop's selection was of particular gratification because the company's design team has concentrated its efforts on lightweight fighter technology for nearly a decade. With this award our group of professionals has been justifiably recognized as one of the finest teams in the world."



LIEUTENANT COMMANDER JIM COLE, Naval Air Systems Command, left, views Harrier maintenance depot with N. V. Micheletti, of the Northrop Harrier program office. Electronics Division is under contract to NAS for the repair and maintenance of the Harrier's inertial navigation and attack system. The Harrier, which is the world's first operational vertical/short takeoff and landing aircraft, is now in service with the U.S. Marine Corps.

NEW AWRS PROTOTYPE AIRCRAFT
Modification of WC-130 aircraft is under way at Kaman Aerospace Corporation. Note new observation porthole above entry hatch. In-flight testing of AWRS is scheduled to begin in August.

AWRS Subsystems Design Phase Nearing Completion

The design phase of subsystems for the U.S. Air Force's new Airborne Weather Reconnaissance System (AWRS) is nearing completion and equipment development is about 90 per cent complete, it was announced by Jack G. Anderson, president of Kaman Aerospace Corporation.

Electronics Division is under contract to Kaman to build an integrated Omega/Inertial navigation system for the AWRS. The division is ahead of schedule on its work and is expected to make delivery of the final hardware in June, according to Bill Stroub, Northrop program manager.

AWRS is a program which, for the first time, applies a systems approach to the problems of measuring and recording the internal forces of tropical storms, leading to improved tracking and forecasting.

Equipment being provided by the division includes the C-5 inertial navigator (ASN inertial measurement unit), ARN-99 Omega receiver/converter, ARN-99 control and display panel, and an antenna. In addition to navigation equipment, Electronics is supplying the input/-output device for the central computers associated with the weather portion of the AWRS.

The prototype AWRS aircraft, a WC-130, has arrived at Ka-

(See AWRS PROGRESS, page 6)

Donel Olson to Speak on Ecology At Meeting of Management Club

Donel R. Olson, president of Olson Laboratories, Inc., will be the guest speaker at tonight's (April 19) meeting of the Electronics Division Management Club.

Northrop recently acquired controlling interest in Olson Laboratories which now operates as a unit of the Electro-Mechanical Division. Mr. Olson is one of the nation's leaders in the field of vehicle emission sampling and measurement. Topic of his speech will be "Ecology and You."

The Management Club meets at LoCoco's Restaurant, 612 Sepulveda, Manhattan Beach. The meeting will begin at 7:30 p.m., preceded by dinner at 6:30 and a social hour at 5:30.

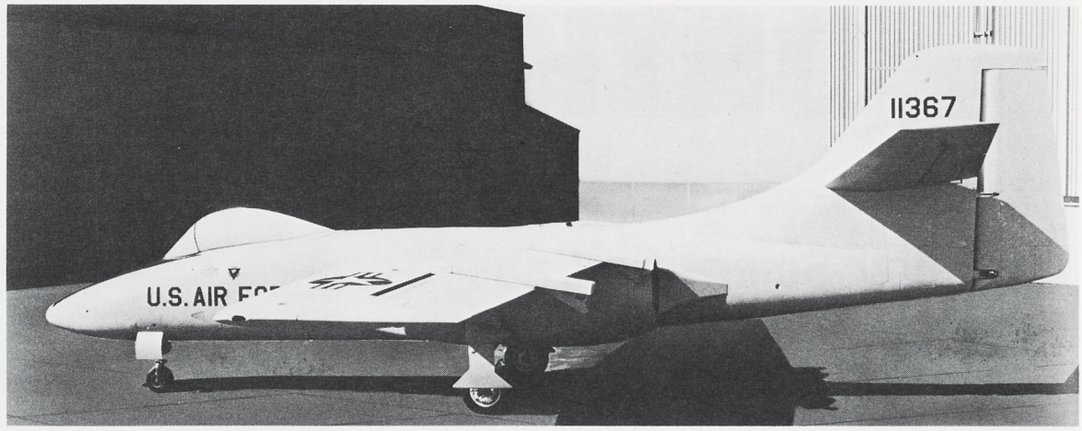
Bond Drive Opens May 8

The Annual Savings Bond Campaign at Northrop will begin May 8, according to Frank Smith, Corporate director of Industrial Relations.

"Savings Bonds now pay 5½ per cent when bonds are held to maturity," Mr. Smith said. "This compares most favorably with bank and savings institution rates since Series E Bonds are exempt from state and local income taxes. Also Federal income taxes may be deferred until the bonds are cashed."

Mr. Smith said that Northrop personnel have always been strong supporters of the Savings Bond Program. "The Northrop campaign this year will be conducted to give those who are not participating, an opportunity to get in on a genuine bargain, and also to provide a chance for those participating who would like to increase their payroll deductions for bonds."

Division bond coordinators and boosters will be appointed in each of the divisions to assist personnel who wish to join the bond program or to increase their bond allotment.



NORTHROP CORPORATION'S A-9A CLOSE AIR SUPPORT PROTOTYPE

A-9A Evaluation Begins Oct. 24

Between Oct. 24 and Dec. 23 prototype aircraft taking part in the Air Force AX specialized close air support flight evaluation will log 123 flying hours.

This information, along with details and specifications involving the prototypes, was contained in initial publicity released this month by the USAF.

Northrop's A-9A and Fairchild Industries' A-10A will compete in the "fly-before-buy" evaluation at Edwards AFB. Each contractor will conduct its own flight test program prior to the official USAF evaluation in flight tests to begin in the late spring.

The 123 flying hours include 54 hours in weapons delivery, 43 for aircraft performance and flying qualities, 20 hours for operational suitability and 6 hours for systems tests.

The flight evaluation effort will be followed by a maintenance demonstration between Dec. 26 and Jan. 2, 1973.

The A-9A developed by Northrop is a high-wing, single-place aircraft powered by two Avco Lycoming Division F-102 engines, each delivering more than 7,000 pounds of thrust. It is 53½ feet long, has a wing span of 58 feet, and is 17 feet high. In the A-9A the pilot sits in a "bathtub of armor" which will provide protection during the close air support mission. The A-9A features foam-filled fuel tanks in the wings well away from ignition sources. All maintenance functions can be performed at ground level on the A-9A.

In addition to the armored cockpit, AX prototype aircraft feature redundant flight controls. Should one of the aircraft's primary hydraulic systems become inoperable, the other will continue to operate. A third manually operated system is available should both hydraulic systems fail. Flight control cables are shielded and run separately from the cockpit to the control surfaces for additional safety.

The A-9A's bubble canopy gives the pilot a 360-degree excellent over the nose visibility to reduce chances of a surprise attack and provide optimum target observation.

Production versions of both aircraft will feature 30mm Gatling type cannons in the nose. Prototypes will be equipped with 20mm Gatling guns for tests.

Colonel James E. Hildebrandt heads the AX System Program Office for the USAF Systems Command's Aeronautical Systems Division.

USAF flight evaluation will be conducted by a joint test team from Tactical Air Command, the using organization, and Systems Command, the developer.

'Gleeble' Aids Research With Welding Processes

An oddly named machine is helping the Aircraft Division's Materials Research Department solve difficult metallurgical problems associated with welding processes, thereby contributing to greater aircraft safety.

"The machine was developed by the staff of the Welding Research Laboratory at Rensselaer Polytechnic Institute to study welding metallurgy," Northrop's K. C. Wu said. "Then they found it would do so many things that there was no name that would fit it. So as a joke someone stuck the name 'Gleeble' on the machine and it has been officially known as a Gleeble since."

The Gleeble consists of a control console and a testing unit. From the console, Mr. Wu can control the heating and cooling of test specimen to simulate a wide variety of welding conditions.

This enables welding metallurgists to develop an appropriate welding parameter.

In one of these units the machine can simulate extrusion of metal, letting a metallurgist optimize the extrusion parameters for a particular alloy in the mill.

The Gleeble can also determine how long metals will stand up to thermal fatigue that is critical in space shuttle applications, and can measure strength and ductility at elevated temperatures. If a designer needs to know how long an alloy will last under service conditions, without losing strength, how hot it can get without melting and how much weight it can support at elevated temperature, the Gleeble can give him the answer with a small specimen. This eliminates the necessity for expensive tests on large-scale mockups.

Since 1964, when the machine went into operation in the Materials Research Lab, it has been used for such widely varying programs as an Air Force contract on metal extrusion simulation, welding of high temperature alloy for aircraft application, and studying problems associated with welding titanium for the SST program.

DAYLIGHT SAVING TIME begins Sunday, April 30, and Pat Schreiner, Ventura, has a problem setting this sundial forward one hour to be on time. The sundial belongs to Mac Pakula and the clocks to S. A. Ashworth.

Northrop Page Dedicates New Headquarters Facility

Northrop Page Communications Engineers, Inc., dedicated new headquarters facilities in this Washington, D.C. suburb March 23 with Virginia Governor Linwood Holton the principal speaker.

The $6 million office building is part of a complex known as Northrop Page Technology Park. It houses Page's headquarters as well as those of another Northrop subsidiary, Northrop Airport Development Corporation.

Speaking at the dedication ceremony were the governor; J. A. Waldschmitt, president of Page and one of the five communicators who founded the firm in 1947, and F.W. Lloyd, Northrop senior vice president, representing President Thomas V. Jones.

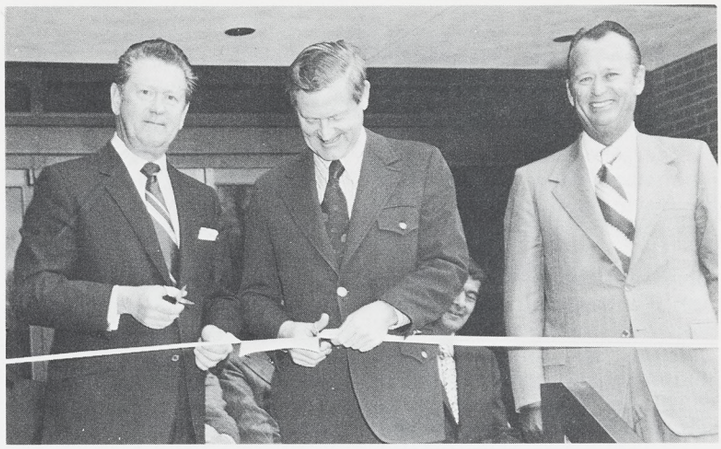
Mr. Waldschmitt told the assembled Page employees that the building and its surrounding grounds were "the result of your hard work," and extended his gratitude to all of them. He thanked Vienna and Virginia officials for their "warm welcome to your fine State of Virginia."

Governor Holton called Page "an organization that is helping people keep in touch" through its worldwide communications activities. The governor, who takes pride in the new business attracted to Virginia during his administration, slipped in an oblique invitation to Northrop to bring its corporate headquarters to Vienna, as well.

"Northrop Page is here," he remarked. "Where's Northrop?"

Mr. Lloyd said the new facility reflects company policy of investing assets in facilities and equipment "that will result in our doing the best job for our customer." He extended to Governor Holton a personal invitation from Mr. Jones to visit California, stating that if Virginia ranks as the "first" state then California runs a close second.

Page and NADC formerly were located in the District of Columbia, in a building just north of the Georgetown section.



DEDICATING NEW NORTHROP PAGE FACILITY
J. A. Waldschmitt, left, Governor Linwood Holton, F. W. Lloyd.

Rome Office Manager Is Veteran Pilot, Executive

Oddone Colonna, manager of Northrop International's liaison field office in Rome, has been directly associated with aircraft, electronics and communications in his native Italy for well over three decades.

His long career has included service as a military and civilian pilot and extensive background in the development and sales of many types of systems and equipment.

Mr. Colonna is typical of men who serve Northrop at widely scattered points around the globe, supporting all company business elements and activities.

Second in a Series

Mr. Colonna assumed his present post in 1966 after serving as a Northrop consultant from 1959 to 1966.

A graduate of the Italian Air Force Academy, Mr. Colonna spent World War II as a fighter pilot.

On Easter Sunday in 1945 he took part in the final aerial combat sortie before the fall of Italy. It led to his becoming a "pen pal" of nine Americans and a pair of unusual reunions.

As leader of a flight of four Messerschmitt ME-109s, Mr. Colonna attacked a U.S. Army Air Corps B-24 bomber over Switzerland. The bomber fell in flames, but the nine crew members parachuted to safety. Despite nine shell holes in one wing, Mr. Colonna returned to his base where he met, briefly, the B-24 pilot and two other crew members who were being interrogated.

In 1962 Mr. Colonna obtained the names and addresses of the crew members and started a letter writing exchange that continues today. A year later he held a reunion with the pilot, General Electric's W.L. "Todd" Sutton, in New Orleans. Two years ago, Mr. Sutton and his wife visited Mr. Colonna and his family in Rome.

After the war, Mr. Colonna became an instructor pilot for two commercial aircraft firms, then returned to active duty from 1950 to 1956. His duties included a tour as aide to Maj. Gen. D. Schlatter, USAF, commander of the Allied Air Forces Southern Europe.

ODDONE COLONNA

THEIR WORK DECORATES NCL WORK AREA
Reg Allen, left, Erna Dillard and Larry Churchill, artists.

Artist Trio Helps Brighten NCL Office

Three talented Northrop Corporate Laboratories employees are pooling their artistic talent to help brighten a busy Information Sciences office area.

The three—Erna Dillard, Reg Allen and Larry Churchill—bring in their art work for display on a rotating basis.

Reg, an engineer, turned to painting as a hobby about a year ago upon completion of a semester of art study at El Camino in Woodland Hills. He works in oils and prefers landscapes of typical Southern California origin. He may sketch a scene for painting later or work from photographs. His wife, Joy, shares his interest in painting as a hobby.

Larry, a program administrator, specializes in metal sculpture, turning out his art forms in a shop set up in his garage. Over the past three years he has turned out "20 or 30" pieces, ranging from a full-scale bridge to birds and animals. Larry's friends receive most of his work as gifts.

Erna is a technical specialist who favors oil and water color painting. She has attended a number of classes in Simi Valley. She paints still life, but really favors alpine scenery, much of it painted from memory of happy years spent in the Alps of Europe. Erna's mother and son share her interest in painting.

Barbara Jones was the originator of the idea of using walls in the office area as an art gallery. She helps arrange the paintings and encourages the artists to rotate their works from time to time.

Shearer Recalls Therapy Work on P-61 Black Widows

A forgotten chapter in Northrop history came to light when the Electro-Mechanical Division's Bert Shearer, recently celebrating his "official" 25 years with the company, recalled his "pre-start" with Northrop two years before this.

Before Mr. Shearer joined Northrop as a regular employee in 1946, he spent a year working part time from a wheelchair and crutches in a Van Nuys hospital ward assembling parts for the Black Widow P-61 night fighter Northrop was building for the U.S. Air Force.

"When manpower was so critical during World War II, Jack Northrop got the idea of utilizing ambulatory patients in Army hospitals," Mr. Shearer recalled. "Many of these needed work therapy as part of their treatment."

A plan was worked out with the Army's Birmingham General Hospital in Van Nuys. Patients needing work therapy who wished to volunteer could work up to two hours a day on subassembly work, and would be paid regular hourly wages.

Northrop set up a shop in one wing of the hospital. Work benches, equipment, and a foreman and leadman were brought from Hawthorne. As many as 50 soldier-patients took advantage of the opportunity to work in the shop. In addition, others confined to their beds were utilized in assembling small parts.

Mr. Shearer was wounded at Anzio in the Italian campaign. He was sent back to the Van Nuys hospital because it was near his home. When he first volunteered for the Northrop work-therapy program he was in a wheelchair, but later he graduated to crutches.

"We had no formal training in assembly," he recalled. "A foreman and leadman told us what to do and then checked our work. My work was assembly of throttle quadrants.

"It was a wonderful program. It gave us something to do and kept us from getting bored. At the same time we felt we were making a definite contribution to the war effort for the P-61 was directly responsible for ending night raids by German aircraft. And, of course, the extra pay helped too."

Mr. Shearer worked with the program part time until his discharge from the hospital in 1945.

REUNION SET

The annual get-together of all retired Northrop employees will be held May 17 at the Western Avenue Golf Course Clubhouse, 1930 - 120th St.

Retirement Club reunion activities get under way with a social hour at 3 p.m. followed by dinner at 6 p.m.

Reservations should be made through Personnel Activities by May 10. The cost: $3.50 per person.

BEAR COUNTRY
Now at Disneyland.

NRC Slates Big Disneyland Night For Family Fun

An all-new "Bear Country" will be among the more than 50 attractions available to Northrop families May 20 when NRC sponsors its annual "Night at Disneyland."

Tickets for this event are now available through all NRC ticket outlets at all divisions and facilities.

The $4 per person tab includes admission to the park and unlimited use of all facilities and attractions, excluding shooting galleries, throughout the evening.

All of Disneyland will be reserved for the exclusive use of Northrop families from 8:30 p.m. until 1:30 a.m.

THESE STITCHES TOOK TIME
Dolores Watson shows prize-winning needlecraft article.

Negative Knit Notion Is Thing of Past for Dolores

Dolores Watson spent half her life telling herself she couldn't knit. Then when she finally did knit she won all three first prizes at an arts and crafts show in Huntington Park.

Her entries included a white one-piece dress made with a complicated fisherman's knit stitch, a one-piece dress and jacket of her own design, a man's sweater, a two-piece suit, and an afghan.

Mrs. Watson first learned the rudiments of knitting as a 10-year-old girl attending a YWCA "Home Camp." The instructors taught her to knit in horizontal lines, but then they would always complete the difficult turns which required diminishing stitches.

"They said this was too difficult for us and I got the idea that I could never knit," Mrs. Watson said.

Took Lessons

Then about seven years ago she happened to pass a knit shop where a group of women were taking lessons. "They were struggling so hard that I felt I could do as well as they," she said. "So I began taking lessons and found I had been wrong all these years. Knitting is really simple. Anyone can knit if you concentrate."

Soon she had progressed to the point where she was knitting entire ensembles, using complicated stitches and unusual materials. On one of her recent knit dresses she worked about eight hours for each inch of dress length due to the complexity of the pattern stitch. Such a dress is worth several hundred dollars just in labor alone, if she should cost account her time.

Another recent project she knitted was a dress with metallic strands woven into the skeins of wool she used. Another was an unusual set of bathroom curtains. These were knitted with jumbo needles measuring one and one-half inches in diameter in order to achieve an open work effect. Heavy velvet yarn was used for the material.

Despite the prizes she has won and the extraordinary articles she has made, Mrs. Watson is proudest of her accomplishments in persuading some of her friends and neighbors to take up knitting.

Easy to Knit

"I could identify with them," she said. "They thought knitting was too hard. This is wrong. Anyone can knit and knit well if they will just apply themselves."

After mastering the rudiments of knitting it is natural to want to progress to the more intricate stitches and more difficult patterns. Knitting becomes more exciting all the time and each difficult pattern stitch holds great fascination. To Mrs. Watson the patterns become a picture as they are knitted, much like an oil painting comes to life through the hands of the artist. One of her greatest rewards in knitting is the creativity and perfection that she can accomplish through the intricate stitches.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Volkswagen, 1968 squareback, radio, $1,250. 213-375-9397, 213-375-2091.

Jaguar XKE, 1963 coupe, chrome wide whls., Pirelli tires, extras, $1,500. 805-482-5451.

Fiat 850, 1969 sport cpe., new batt., clutch, valves & brakes, $950. 213-457-9600.

Jeep, 1966 CJ-5A, canvas top, roll & tow bar, $1,500. 213-374-0510.

Power Wagon, 1960 Dodge, 4x4, winch, extra gas, rblt. eng. & transfer case, $1,500. 805-497-2823.

Maverick, 1970, big 6, r/h, 22,000 mi., $1,500. 213-625-1020.

Volkswagen 1300, 1966, radio, new tires, clutch, $595. 213-596-0433.

Volkswagen Bus, 1965, Porsche powered, wood panelled, $995. 213-821-4180.

Cadillac, 1968 convt., $2,900. 213-754-3903, 213-779-6805.

Ford, 1963 Gal. 500, r/h, p/s, p/b, motor & radiator rebilt., $400. 213-378-4676.

Oldsmobile, 1961 88, 2-dr., $175. 213-842-8724.

Race Car, G production Triumph Spitfire, ideal for new SCCA drivers, $1,100. 213-832-3852.

Karmann Ghia, 1961 w/remanufactured eng., stick shift, r/h, $299. 213-889-0191.

Datsun, 1967, 4-spd., r/h, just o/hauled, $375. 213-676-5141.

Volkswagen, 1969, r/h, 28,000 mi., $1,295. 213-326-7084.

Ford, 1965, a/c, p/s, new auto. trans., $500. 714-595-3398.

Mercury, 1970 Cougar XR7, a/c, p/s, p/b, p/w, htr., AM radio, 8-track stereo tape deck, less than 19,000 mi., $2,995. 213-325-3257.

Station Wagon, 1964 Olds, 9-pass., p/s, p/b, fact. air, $395. 213-860-6959.

Chevelle Malibu, 1966, 2-dr., auto., V-8, r/h, $700. 213-670-3713.

Chrysler, 1963 convt., full power, air, auto. pilot, 60,000 mi., $450. 213-375-6773.

Renault R10, 1968, $650. 213-831-5304.

Ford, 1963 fastback, 2-dr., new paint, tuck & roll int., $475. 213-329-6174.

Chevrolet, 1968 Impala, 2-dr., new tires, auto. trans., p/s, p/b, a/c, $900. 213-374-0664.

Fiat, 1961 1500 convt., dual ovhd. cam eng., r/h, 4-spd. trans., $550. 213-675-1354.

Opel Kadett, 1969 Sports Rallye, fully equipped, $1,150. 213-377-2657.

Miscellaneous For Sale

Tape Recorder, stereo, 1970 Panasonic, spkrs. enc., 2 mics., 4 heads, $175. Box 401.

Boat, 15′ fiberglass, 35 h.p. Evinrude motor, trailer, $525. 213-833-9546.

Poodle, black male, miniature, 3 mos. old, AKC, $60. 213-320-0363.

Bicycle, man's, 10-spd. & handbrakes, English make, $35. 213-674-9627.

Trailer, small flatbed, $35. 213-671-0357.

Starcraft, 1971, 14′ fiberglass hull, 1969 Mercury 65 h.p. eng., 1971 little dude trailer, $1,700. 213-324-2471.

Sofa, French Provincial, 2 marble topped tables, lamp, $100. 213-644-2175.

Sofa, 8′, $125. 213-676-5770.

Great Books of the Western World, vols. 1-54, $150. 213-675-6233.

Sailboat, 15′ Glen L, trailer, cover, $700. 213-963-5524.

Snow Tires, 2, mounted, & rims, 8.25x14, $5. 213-325-3675.

Wedding Dress, lace, size 14, $35. 213-329-7214.

Rifle, Weatherby .300 magnum, Kahle 4X scope, Redfield mounts, $300. 213-375-6071.

Tent, 9x12, Wards, ext. alum. pole, $30. 805-498-2787.

Lot, 60x100 in Tahoe Paradise, 4 miles from South Shores Casinos, $7,000. 213-329-4762.

Chairs, 2 uphol., brown & tan, $25 ea. 213-678-1446.

Pole Lamp, brass, w/3 crystal round hanging globes, $5. 714-830-3048.

Miscellaneous For Sale

Turntable, Garrard, Harmon-Kardon tuner/amplifier, stereo tape deck, in 6′ oiled walnut Barzalay cabinet, $100 or will sell sep. 213-275-7341.

Rug, varigated blue & green, all wool, 5½x9, $50. 213-327-2493.

Water Bed, ¾ size, & frame, $30. 213-675-6020.

Camera, Yashica Lynz 5000, f-1.8 lens, bltin elec. eye, case, $50. 213-851-1376.

Piano, upright, modern style, walnut covered finish, $200. 213-696-7529.

Pictures, 9, antique orig. water color, Oriental, 3 in set, $130. 213-326-0124.

Pool Table, 3½′ x 7′, $40. 213-423-1363.

Crib, Edison, white, mattress incl., $20. 213-679-5506.

Pistol, Luger, 9mm, all matching nos., reblued, $125. 213-375-4312.

Engine, 396 C.I.D. Lincoln, 100 mi. since complete o/haul, access. & trans. avail., $450. 213-676-3095.

End Tables, 2, Danish walnut, never-mar finish, 26″ sq., $15 ea. 213-541-3000.

Motorcycle, 1971 step-thru Honda 70, elec. starter, extras, $150. 213-831-3737.

Rims, set of 4, std., for Camaro & 4 wheel covers, 2 7.35x14 tires, $29 or sell sep. 213-323-8797.

Camera, Mamiya 16 auto., bltin photocell, 4x1¾x1¼″, weight 10 oz., $55. 805-492-1633.

Desk Chair, exec., swivel, arms, high back, black leather uphol., $60. 213-675-6668.

Fish Tank, 15 gal. & 10 gal., wrought iron stand, $50. 213-926-5331.

Acreage, 2½ acres, Antelope Valley, water & elec. to prop. corner, $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

House Trailer, 1968 Field & Stream, 15′, $795. 213-374-7291.

Lot, 52 x 110, view, huge trees, walk Lake Gregory, San Moritz Club, Crestline, terms, $3,950. 213-377-1074.

Motorcycle, 1969 Honda CL-125, $225. 213-377-5897.

Occasional Chairs, 2 matched, custom, coral & gold, $35. 213-670-2564.

Typewriter, Royal portable, script print, $20. 213-541-2710.

TV, Sears Silvertone, 21″, color, table mod., $200. 213-832-3857.

House, 2-story, 4-bdrm., 2 baths, f/place, bltins, cpts., dps., G.I.-FHA conv. financing avail., Cerritos area, $32,500. 213-860-3022.

Hair Dryer, Kenmore, stand type, $15. 213-370-6896.

Refrigerator, G.E., freezer drwr. on bottom, $85. 213-675-5258.

Bird Cages, 48x24x31, 48x21x55, $10 ea. 213-373-3386.

Table Lamp, Early American w/dec. custom shade, $20. 213-325-5245.

Motorcycle, 1971 Harley Davidson, 74 cu. in., 8,500 mi., $2,300. 213-324-8437.

Piano, spinet, w/bench, mahogany, $325. 213-530-0765.

Stereo System, Heathkit SD-1, stereo FM tuner, phono, spkrs., cabinets, $85. 213-846-5589.

Ski Boots, men's 9½ & stretch pants, German made, $20. 213-324-1908.

Utility Trailer, 4′ x 7′ bed, $35. 213-326-6214.

Flute, Bettoney, $100. 213-865-5084.

Bed, dble., w/headboard, walnut, $35, other misc. items. 213-641-0683.

Doors, 6, used, int., painted, 4 are 30″ wide, $5. 213-675-8813.

TV, Zenith color console, 8 yrs. old, $50. 213-327-4585.

Motorcycle, 1971 Yamaha mini-Enduro, 60 cc, exp. chamber, $245. 714-528-8582.

Couch, 8′, Danish, $80. 213-376-8372.

Ham Equipment, tubes, pr., 4CX250B, $10, other items. 714-639-4438.

Outboard Motor, 5 h.p., Elgin, $60. 213-755-6118.

Piano, console, 5 yrs. old, 77 keyboard, $300. 213-323-0474.

Accordion, Universal, 120 bass, $100. 714-842-4283.

Hide-A-Bed, Early American, gold naugahyde, $135. 213-329-1565.

Sail Boat, 16′2″ Fire Ball, trailer, Dacron sails, extras, $800. 714-893-0414.

Dryer, G.E., 1½ yrs. old, $75. 213-373-4336.

House, 3-bdrm., 1¾ baths, family rm., f/place, bltins, Torrance West High area, $37,900. 213-370-1891.

Motorcycle, 1969 Honda SL 90, 2,000 mi., $210. 213-596-2039.

Miscellaneous For Sale

Dishwasher, G.E. portable Mobile Maid, 8 yrs. old, needs light repair, $25. 213-867-1651.

Outboard Motor, British Seagull, mod. 40, featherweight, 2 h.p., used 10 hrs., w/case, $100. 213-645-7931.

Stereo, walnut console, Telefunken, tape recorder, $425. 213-675-7673.

Crib, w/mattress, white, drop sides, $22.50. 213-376-4831.

Houseboat, 1969 mod., 38′, twin eng., ocean-going, $15,500. 213-320-3583.

Swim Fins, Duck Feet, 2 prs., lge. size, $3 pr. 213-675-2005.

Washer, G.E., $25. 213-329-2330.

Typewriter, IBM elec., $165. 213-673-5614.

Pup, Dalmation, AKC reg., female, 4 mos. old, $50. 213-676-6187.

Encyclopedia, 15 vol. 1881, $40, many other antiques. 213-474-5726.

Iguana, 36″ long, lge. cage & access., $25. 213-644-2487.

Crib-Playpen, collapsible, $7. 213-645-7972.

Glassware, depression, & old dolls, 50¢ & up. 213-670-7940.

Bucket Seats, 2 deluxe Ford van, seatbelts & holders, $40. 213-371-2948.

Bicycle, boy's 20″ Stingray, $20. 213-833-7722.

Motorcycle, 1967 Triumph, 650 cc, recently reblt., $800. 213-323-9003.

Roaster Oven, Westinghouse, lge. size, $10. 213-329-6748.

TV, Magnavox, color, 24″ screen, console-type, $299. 213-939-4213.

Motorcycle, 1966 Honda, CL160, dirt tire & gear, $225. 213-645-8004.

Camping Trailer, 13′ 1965 Cardinal, stove, ice box, sleeps 5, $595. 714-828-2815.

Motorcycle, 1970 Honda CT 70, $195. 714-635-2539.

Camper, 1971 11′ Week-N-Der, fwd. kit., dble. sink, stove, 3-way refrig., queen cabover bed, 8′x14′ patio, many extras, accept shell w/cargo dr. as part pymt., $1,995. 213-943-1031.

Typewriter, Underwood Master, $30. 213-677-7421.

Home, 3-bdrm., 1¾ bath, fam. rm. & P.V. f/place, h/wood flrs., det. dble. gar., fenced yd., 2 miles from Aircraft Div., $31,900. 213-327-2279.

Boat, 14′ glass o/wood, steering & controls, steel trailer, 25 h.p. Mercury, $400. 213-896-7849.

Wanted to Buy

Railroad Ties, 8 to 10, reasonable price. 714-633-5826.

Hide-A-Bed, dble. size, pref. Simmons. 213-676-6298.

Oldsmobile, 1954, good condition. 213-377-5362.

Speakers, 2, in sep. encls. for stereo system. 213-242-9723.

Code Machine, key cutting type, locksmith tools & supplies. 213-645-1489.

Lawn Mower, reel-type, power. 213-372-7270.

Truck Manual, 1960 Chevrolet. 213-378-3017.

Camera, late model Hasselblad, w/ or w/out access. or Rolleiflex, call collect. 805-948-1251.

Volkswagen, squareback, 1971 or 1972. 213-323-6039.

Free (To Be Given Away)

Dog, female, beagle/dachshund comb., loves adults but not children, 213-644-3957.

Kittens. 213-635-7942.

Rentals Offered

Apts, new shag cpts. & dps., pool, gars., single furn., $130, 1-bdrm. unfurn. $135, $155 furn. Box 402.

Apt, unfurn. 1 & 2 bdrm., f/place, patio, aircond., shag cpts., FM music, s/proofed, bltins., 3-way mirrors, lath & plaster, from $175-$235 mo. 213-641-9700.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only $125 wk., $50 w/end. 213-326-7232.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn. incl. linens, $35 w/end, $100 wk. 213-823-1788.

House, Bass Lake, $150 wk. 213-374-3702.

Cabin, Big Bear Lake, 2-bdrm., 1 bath, sleeps 8, f/place, furn., 5 acres of b/yard, $100 wk., $45 w/end. 213-325-8267.

Cabin, Big Bear City, 2-bdrm., 1 bath, $40. 213-320-6486.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40 w/end, $70-$90 wk., 213-868-8040.

ICE CAPADES

Time is running out for the purchase of discount tickets to the Sunday (April 23) 5 p.m. performance of Ice Capades at the Los Angeles Sports Arena.

NRC has obtained a block of 500 "best in the house" seats normally selling for $5 each. Employees may buy them at regular ticket outlets for just $3.50 each.

Rentals Offered

Apts, Redondo Bch., 1 mo. free rent, 3 blks. to ocean, 1-bdrm. $145, 3-bdrm., 2-bath $220. 213-372-2348.

Cabin, Lake Arrowhead, no. shore, 200 ft. from lake, pvt. dock, $125 1 wk., $200 2 wks. 213-375-2255.

Cabin, Lake Arrowhead, family only, $55 w/end, $125 wk. 213-831-1745.

Camper, 11′ 1971 pickup, sleeps 6, $100 wk. & 5¢ mi. 714-544-0773.

Apt, 2-bdrm., no stairs, unfurn., bltins, cpts., dps., pool, 2 blocks from Crenshaw/Pacific Coast Hwy., $160 mo. 213-325-4580.

Cabin, Arrowhead & Running Springs, sleeps 4-5, $30 w/end. 213-370-7105.

Apt, 2-bdrm., unfurn., d/stairs, locked gar., cpt., dps., bltins., lge. pool & patio, near El Camino, adults, $165. 213-329-5986.

Condominium, 2-bdrm., Palm Springs area, furn., heated pool, $100 wk., $60 w/end. 213-327-8994.

Child Care

Childcare offered, my home, weekdays. 213-865-7594.

Personals

Thanks to the members of Northrop who were so generous & for the flowers at the passing of our wife & mother. BARBARA, ROD & HARP SMITH.

I would like to thank all of you for thinking of me during my recent hospitalization & recovery. CHRISTINE LUCERO.

Will pay 10% int. on 2nd trust deed for $2,400, good so. Redondo property, 5 yr. term. 213-375-5009.

Ride Wanted, 7 a.m. to 3:45 p.m., from 3rd & Hauser vicinity, Los Angeles, to Plant I. Aircraft ext. 4358, 213-933-6449.

We wish to express our sincere appreciation for the kind expressions of sympathy regarding the recent passing of our mother. JOHN & LORRAINE SADOWSKI.

I would like to extend our deepest gratitude to our friends at Northrop for their donations of blood & expressions of concern during the illness of my sister. KAY & ED MELENDY.

We would like to express our sincere thanks to all our friends of Electronics P.V. & NRC for the kind thoughts, deeds & flowers during the recent illness & passing of Beryl B. Jackson, beloved wife & mother. BILL JACKSON, HERBERT JACKSON, MRS. JOYCE YODER, MRS. STEPHANIE STARKE.

Thanks to all my friends at Northrop for the wonderful retirement party. Bernie & I will always cherish the memory of being with so many wonderful & thoughtful people who embarked us on our new journey of life. A. H. ANDERSON.

I wish to express my gratitude & thanks to all my friends at Northrop for helping to make my retirement a happy one. BEULAH KUSEL.

I would like to thank my friends for the party & for making my retirement even more pleasurable than anticipated. CARL WHITAKER.

Thank you all. Your gifts, the dinner & interest will always be a treasure. DAVE TRIMBLE.

To all our friends at Northrop, thank you for your thoughtfulness & kind expressions of sympathy at a time when it was deeply appreciated, with the loss of my wife, Mickie. JIM POWERS & SONS.

We wish to extend our appreciation to all for their concern & thoughtfulness during my illness & recovery. LEE & AL BINDER.

For Sale or Trade

Chevrolet, 1968 Nova SS350, 4-spd., positraction, mags, many extras, $1,650 or trade for pickup or van. 213-328-3383.

Lot, duplex, in Lake Havasu City, $9,700, 6% int. or trade $4,500 equity for equal equity in mobile home lot or car. 213-323-7877.

ILA MELGER, U.S. Savings Bonds coordinator for the Electronics Division, and Robert R. Forbes DeTimmerman, of the Electronic Test unit, remind all division personnel that Northrop's annual savings bonds drive begins next month.

Joe Radigan Hits Quarter Century Service Milestone

Joe Radigan, Technical manager in the Strategic Systems office, qualified this month for his 25-year Northrop service pin.

Mr. Radigan joined Northrop in 1947 following his graduation from Santa Clara University. His first assignment with the company was as an electronics engineer on the Snark program. Prior to joining the Electronics Division at the end of 1971, Mr. Radigan was assigned to the Deep Submergence Systems Program in Anaheim.

Other employees receiving service pins this month include:

Hawthorne

Twenty years: James Brust, Systems Evaluation group; and Francis Finnegan, Spares Support unit.

Fifteen years: Edwin Smith, Chuck Chamberlain, Bryan Whitson, Gerald Stephens, Rudolph Ohnersorgen, Richard Oleson, Charlotte Moore and Raul Ortiz.

Ten years: Edward Easley, Hattie Moore, Dora Garcia, Alice Rupert, Virginia Taylor, William Parker, John Mercer Jr., I. Alvarez Jr., Beulah Priest, Paul Hannah Jr., William Anderson, Eugene Choy, Ralph Van Cleave, Elwin Sammons and Raymond Rakes.

Five years: Gloria Burton, Naomi Tillman, Carla Lewis, Josephine Fisher, Ray Pullara, Virginia Bolton and Shirley Carman.

Palos Verdes

Twenty years: John Overholser, Systems Test group.

Fifteen years: O. H. Jacobson and D. F. Russell.

Ten years: Dorothy Vale, Eileen Hennrick, L. A. Jeffries, Roy Perschy and R. O. McLaughlin.

Five years: William Nicholson.

AWRS PROGRESS

(Continued from page 1)

man's facility in Windsor Locks, Conn., for airframe modifications, equipment installation and systems testing and integration.

Ultimately, AWRS may be installed in 22 additional Air Weather Service WC-130s and in six WC-135s for worldwide coverage of weather phenomena.

Additionally, improved measurement and analysis of the natural forces of tropical storms may result in increased knowledge of storm structure and predictability, enabling scientists to alter or rearrange the forces to lessen their destructiveness over populated land masses.

MacConnell Appointed to Technical Advisory Committee of State Board

Craig B. MacConnell, of the Personnel and Compensation Administration office, has been appointed to the Technical Advisory Committee on Testing for the California Fair Employment Practices Commission.

In his new position, Mr. MacConnell will help to form testing guidelines that will enable an employer to use a fair and nondiscriminatory method in the selection of his future employees.

Since its establishment in 1959, the California FEPC has worked with concerned employers, unions, educators, and other groups in protecting and safeguarding the right and opportunity of all persons to seek, obtain and hold employment regardless of race, color, creed, national origin or sex.

Toastmasters Club Schedules Noted Speakers

Northrop Toastmasters Club has extended an invitation to all employees and guests to attend the club's spring meetings and hear a series of lectures by noted speakers.

The meetings are held each Wednesday, now through May 10, in the Banquet Room of the Turner Century Motor Inn, 4300 West Century Boulevard. The program gets under way at 6:30 p.m. Dinner is optional.

Speakers and their topics include Carroll W. Butler, retired research chemist, "The Untapped Potential of the Human Brain" — April 19; Dr. Dixie Sturgis, professional lecturer, "Who Said It, and How" — April 26; David Kintler, Xerox product manager, "Selling and the Younger Generation" — May 3; John J. Dulin, free lance architect, "Gypsy Days on the Delta" —May 10.

Additional information is available from Earle R. Miller, Electronics Division, ext. 465.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Northrop Wanderers Hold Campout — Hobo Style

Northrop's Wanderers Camping Club had a record turnout for their "Hobo Stew Potluck" get-together at the Glen Ivy Campgrounds.

Each family in attendance contributed their stew to a large pot and the resultant mixture was said to be "extremely good."

Members dressed as hobos and prizes were awarded for the best costumes.

The club's next campout is scheduled for the weekend of April 22 at Fisherman's Creek. Camping Club commissioner for the NRC in the Electronics Division is Frank McGinley, ext. 227, Hawthorne.

HAPPY WANDERERS
Scene at Glen Ivy campgrounds, site of NRC's Hobo festivities.

CHIEF 'HOBO'
Commissioner Frank McGinley samples the "Mulligan Stew."

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 5 | May 1972

ERIC HENNEY, Ferranti Product Support manager, Edinburgh, Scotland, discusses new manuals with John McIntyre, Harrier Depot program manager and Lloyd Jones, Product Support deputy director, Electronics Division.

Northrop to Unveil New Omega Indicator Panel

A newly designed Omega control and indicator panel which meets commercial airlines navigation systems ARINC 561 specifications will be unveiled to the commercial airline community by Northrop at the Air Line Pilots Association Air Safety Forum in Washington, D.C., May 23-24-25, according to A. J. Eldridge, Omega Marketing manager.

Special software, developed by E. J. Smith, senior research engineer, will be used to demonstrate a complete flight plan using the Northrop ARN-99(V)2 Omega navigation system.

As comprised now, the computer-controlled Omega system affords automatic aircraft guidance from one check point to the next, so that the pilot loads his flight plan into the system, and, through automatic-pilot coupling, flies "hands-off" to his destination. The system will handle up to 10 check points.

Omega provides aircraft steering, heading information, range and bearing, cross-track error and other data upon demand.

R. A. Lindsey, Avionics Marketing manager, will also attend the meeting.

ADAMS HEADS SERVICE AWARD LIST

Lloyd A. Adams heads the list of Electronics Division employees qualifying this month for Northrop service awards.

Mr. Adams, a 25-year veteran, began his Northrop career in 1947 working nights in Receiving Test and going to school days. He then was supervisor at Nortronics in the Receiving Test Lab on the YB-49, F-89 and C-5 programs. His present assignment is in Research and Technology at Palos Verdes.

Other employees receiving service awards this month include:

Hawthorne

Fifteen years: Bert Wellbaum, Gintautas Vitkus and Raymond Nazaruk.

Ten years: Constance Knoblauch, Anne Daley, Leta Rye, James Lockhart, Lewis Lantz, Ernst Brandi, Lois Black, John Warsop and Joyce Boggus.

Palos Verdes

Ten years: Louis Oberholtz.

Five years: Luther Stollings, Gaile Johnson, Shirley Brady and Frank Ventura.

Previously not reported were those employees receiving 10-year service awards in March.

Hawthorne

James Ream, Anderson Lipscomb, Edwin Gardner and Jitsuo Yamamoto.

Palos Verdes

Ralph Williams, Warren Heimer, Henry Greenberger, Joan James, Leo Arceneau, Jr. and Pam Horn.

Contract Awarded for Maintenance Manuals

Maintenance and illustrated parts breakdown (IPB) manuals will be prepared for the Ferranti Inertial Navigation Attack System used in the Harrier VTOL/STOL under a contract awarded to the Electronics Division by the U.S. Naval Air Systems Command, Washington, D.C.

According to J. A. McIntyre, Harrier Depot program manager, "The manuals to be prepared by Northrop will complement the data prepared for the RAF, the original purchaser of the Harrier, and will enable U.S. Marine Corps technicians to repair and maintain the equipment without extensive training or experience."

The new contract calls for one comprehensive manual on testing, troubleshooting, repair and overhaul, and IPB's for each of the eight airborne modules.

Preparation of the manuals is under way in the Electronics Division Product Support subsection, under the supervision of R. S. Umekubo, Technical Support unit.

Northrop was designated by NASC as the repair depot for the Ferranti-manufactured Harrier navigation system last year.

Graboff Speaks To Symposium

"Marketing Forecasting and Bid Strategy" was the subject of an address by Roy Graboff, chief, Accounting group, to the annual symposium of the Planning Executives Institute last month at the new Los Angeles Convention Center.

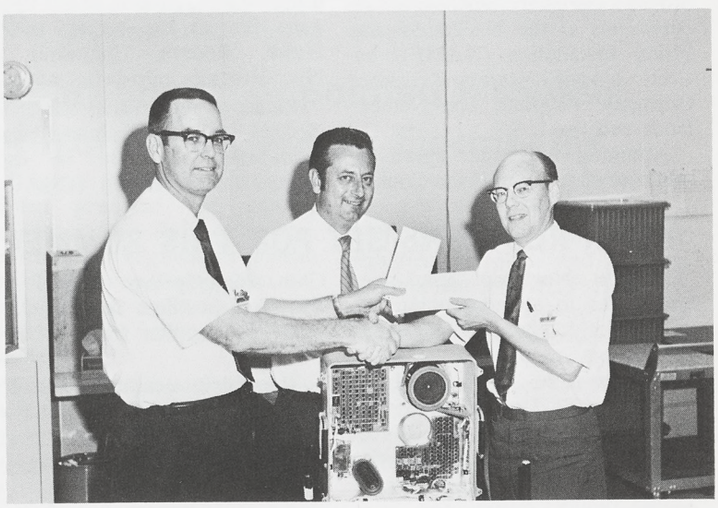
HIP PROGRAM GRADUATES 126

One hundred twenty-six students from eight Los Angeles high schools were graduated from the High School Involvement Program—HIP—in ceremonies held May 11.

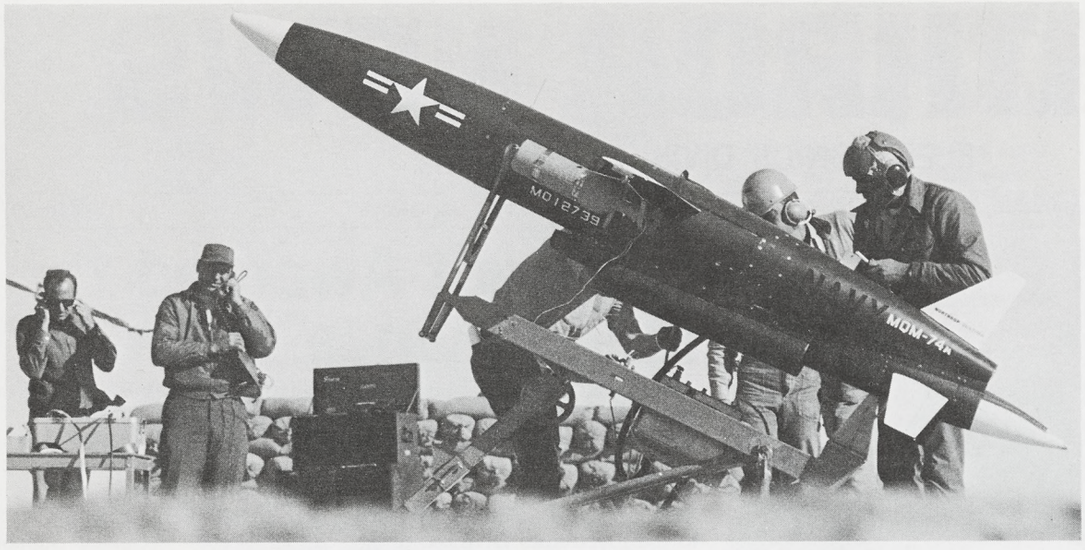
George F. Douglas, Northrop senior vice president, Administration, addressed the group on how HIP training, coupled with their school's academic courses, can give the students a head start in the business community.

HIP is a joint effort of Northrop and the Los Angeles, El Rancho and Compton school districts. Students from the schools attended classes at the Aircraft

(See HIP, page 6)



JOSEPH F. COLES, right, Inertial Measurement Unit Repair, receives a Northrop Suggestion Awards Program check for $131 from his foreman, T. F. Koenig, as Supervisor G. N. Downs watches. Mr. Coles suggested an improved IMU heater blanket thermo switch mounting. Other recipients of cash awards this month are: P. J. Zulueta, Techniques Development unit, $15; R. F. Beye, Materials Stores unit, $11.50; and Sam Musuraca, Manufacturing Engineering and Planning unit, $11.50.



NORTHROP MQM-74A READY FOR LAUNCH
U.S. Navy team makes final preparations prior to firing Ventura-built target.

WORLD LEADER

Nineteen Nations Use Ventura Targets

Although probably best-known for its design and production of the Apollo Earth Landing (parachute) System, Northrop's Ventura Division is the world's leading producer of remotely-controlled aerial targets — more than 65,000 manufactured since 1938.

Northrop targets, which are recoverable and re-usable, simulate full-size aircraft to weapons systems and anti-aircraft teams. Now in service in 19 nations, the Northrop targets have proven reliable and cost-effective in keeping gun and missile crews at combat readiness.

The latest version, the turbojet propelled MQM-74A or Chukar, as it is known internationally, has proven extremely successful in operations at the NATO Missile Firing Installation (NAMFI) on Crete. NAMFI users are Greece, Germany, Belgium, The Netherlands and the U.S.

Attaining maximum speed at sea level of 400 knots, the Chukar can maintain an airspeed of 425 knots at 20,000 feet for 143 nautical miles. Performance ceiling is 40,000 feet.

The Chukar is propelled by a Williams Research-built WR-24-6 open-cycle turbojet engine rated at 121 h.p. at 60,000 revolutions per minute. JATO bottles give the Chukar added boost at launch.

Simulating the attack modes of missiles or aircraft, the Chukar is a formidable foe. For example, to a gun crew at 400 yards the Chukar appears as a supersonic fighter at 1,000 yards.

Various augmentation systems make the Chukar compatible to many weapons systems. Crews using 40-mm, 20-mm, and 0.50-in. guns fire at the target, as do Hawk, Redeye, Chaparral or Nike-Hercules missile teams.

Radar and infrared air-to-air missiles such as the Sparrow and Sidewinder can also be used against this Northrop target.

Armed forces using Northrop targets are able to use ground support equipment which in many cases is interchangeable between the advanced Chukar and KD2R-5 Basic Training Target. Such GSE includes remote control systems, tracking systems, and related support equipment.

Drawing on more than 30 years of experience, Ventura engineers are now at work on the next generation, known as Remotely Piloted Vehicle (RPV). Military planners envision a host of different uses for RPV's.

WW II REUNIONS SET FOR THIS SUMMER

Eligible Northrop employees are invited to attend reunions of three World War II Air Force groups this summer.

The first is the 30th anniversary get-together in Las Vegas of former members of the Air Force Transport Command on the weekend of May 19-21. The ATC pioneered many routes and procedures for trans-ocean flying that set the pattern for expansion of commercial transport aviation.

The second is the Hump Pilots Assn., which is holding its 27th reunion at the Riviera Country Club, Palm Springs, Aug. 17-20. The Hump Pilots include those who flew supplies from India to China.

The third reunion is the first staged by the newly formed P-40 "Warhawk" Pilots Assn. It will be held at the Imperial House North in Dayton, Ohio, Sept. 15-17. Northrop's John Alison is the organization's secretary. The "Warhawk" was the first American World War II fighter to engage in combat in every theater of war throughout the world.

Northrop Invests in Chestel, Inc.

Northrop has acquired a minority interest in Chestel, Inc., a recently formed company that designs an attachment for telephones to eliminate the need for switchboards in systems up to 50 lines.

Northrop's interest in Chestel is under the management of Northrop Technology Development, Northrop's venture capital subsidiary which was organized to invest in small, technology-oriented companies in the commercial markets.

David Joslow, president of Chestel, was a founder and former president of Chester Electronics Laboratories, a subsidiary of General Telephone and Electronics Corp.

In taking a minority position in Chestel, Northrop said it had agreed under certain conditions to provide additional financing and thus acquire a larger minority interest in the company.

RAY TOP LENSMAN

Lauren Ray, Aircraft Division technical publications production specialist, has won top prize—a Savings Bond — in the annual Winter Photo Day competition staged by the Palm Springs Aerial Tramway.

Mr. Ray's winning entry was a photo of Cindy Blake, an Anaheim model and dancer, perched atop a rock outcropping.

THE WELCOME SIGN is out again for Northrop families at Disneyland with Northrop Night slated for May 20. Tickets for the event are still available through all NRC outlets at all divisions and facilities. The $4 tab per person includes parking, admission, and unlimited use of all attractions except shooting galleries. The park will be open to Northrop families exclusively from 8:30 p.m. to 1:30 a.m.

Northrop's Order Backlog Increases During Quarter

Northrop's order backlog at March 31, 1972 had increased to $613,200,000 compared to $477,916,000 on the same date last year, according to the company's quarterly report to shareholders.

The report, which covered the first three months of 1972, reported net sales at $113,306,000 compared to $143,638,000 for the corresponding period in 1971. Total sales figures include those of Wilcox Electric and the George A. Fuller Company, recent acquisitions of Northrop.

The drop in sales is attributed to lower deliveries of 747 fuselage assemblies, declining F-5 sales, and phase-out of the T-38 trainer.

Although primary earnings per share were 52 cents compared with 56 cents for the same period a year ago, the ratio of earnings to sales for this three-months period was 2.1 per cent compared with 1.9 per cent a year earlier.

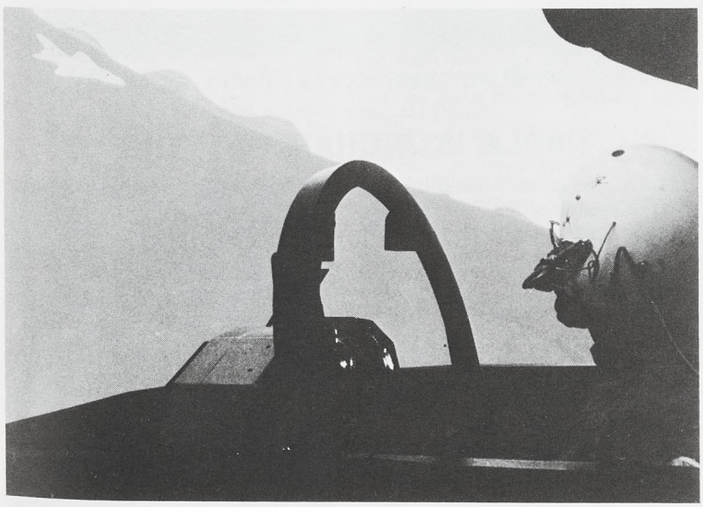
The backlog figures do not include the $39 million contract just received from the U.S. Air Force for a Lightweight Fighter.

Electronics Div. Expands Medical Data Systems

Northrop Corporation continued its expansion into the medical data systems market with acquisition, for cash, of the assets of Predictive Medical Systems Inc., a wholly owned subsidiary of Pacific Measurements, Inc., Palo Alto, Calif.

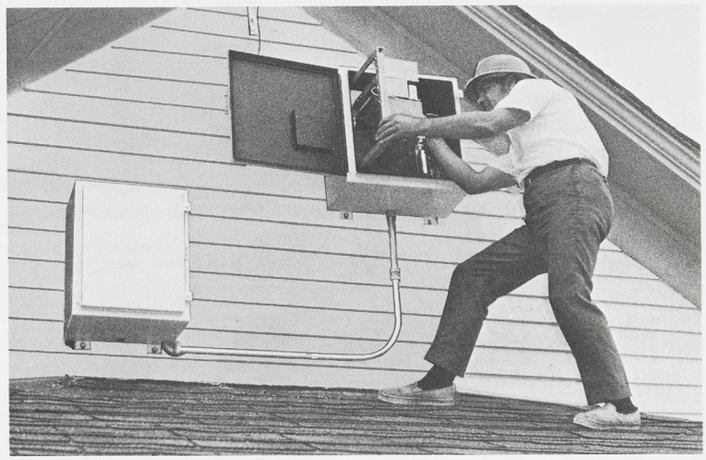
In making the announcement, Ross F. Miller, vice president and general manager of Northrop's Electronics Division, noted that the assets and personnel of Predictive Medical Systems will be merged with those of Berkeley Scientific Laboratories which Northrop acquired last month from Tracor, Inc.

JIM NORMAN, Environmental Systems, right, and John St. John, supervisor of Engineering R&D, Service Research Center, Ford Motor Co., check out the Northrop-Olson Labs, Olson-Horiba, display of vehicle emission test equipment at the recent Society of Automotive Engineers exhibition in Detroit. Both Mr. Norman and Mr. St. John were panelists on the important SAE seminar, "Diagnostic and Maintenance Effects on Environmental Control."



THIS IS A PILOT'S-EYE VIEW of target inside Northrop's new Large Amplitude Flight Simulator/Wide Angle Visual System. The simulator cockpit is located in the exact center of the projection screen to eliminate distortion. Target image projector subsystem provides a 90 to 1 variation in image size for target range information, and three directions—pitch, roll and yaw—of target model rotation. Pilot horizontal field of view in the simulator was recently increased to 210 degrees. The simulator is built by Northrop's Aircraft Division.

News From Around The Company



THE NEW RURAL Subscriber Radio Telephone developed by Hallicrafters will extend telephone service.

Hallicrafters Develops New Rural Telephone System

Hallicrafters Co., a Northrop subsidiary, has developed an economical solution to extending rural telephone service in domestic and international markets by utilizing many advantages of VHF radio.

The new Rural Subscriber Radio Telephone development consists of two systems. The RTV-51 is capable of connecting up to 10 subscribers on a party line basis, except that the telephone line is extended by VHF radio up to a distance of 30 miles from the central telephone office.

The second system, the TRV-51ML, connects from one to 20 subscribers on a private line basis over a single pair of VHF radio frequencies.

The two systems provide for the extension of telephone service to locations that are distant from the central telephone office when it is uneconomical to connect by open wire, underground cable or high density radio.

The systems, which meet or exceed existing transmission objectives for subscriber service, are completely compatible with any existing automatic dial or manual exchange. They require low initial capital.

Robert Shank Appointed President Of Northrop's Wilcox Electric, Inc.

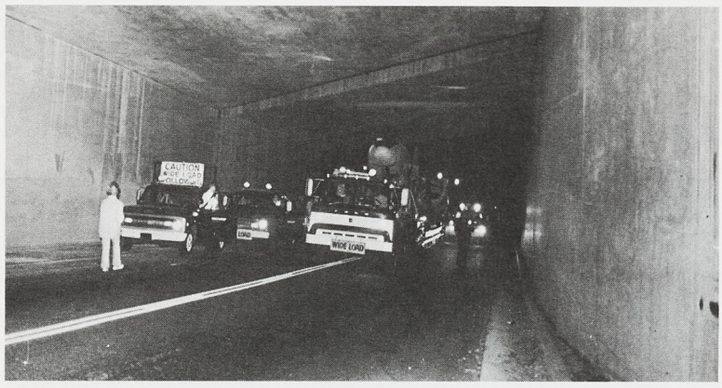
Robert J. Shank has been appointed president and general manager of Wilcox Electric, Inc., Kansas City, Missouri, a subsidiary of Northrop Corporation, according to an announcement by Thomas V. Jones, Northrop president.

Wilcox Electric, Inc., specializes in the manufacture and marketing of electronic navigation and communications equipment for commercial aircraft, general aviation, and ground-based electronic navigation and commercial equipment lines for airport installation.

Organizationally, Mr. Shank will report to Harrison Van Aken, vice president of Northrop and president of Hallicrafters Co., also a Northrop subsidiary.

Mr. Shank was formerly a vice president for plans and business development for AIL Inc., a division of Cutler-Hammer. He has had a long and successful career in the aviation field, and has received international recognition for his contributions to the development and acceptance of Microwave Landing Systems.

Mr. Shank has held key management positions with Hughes Aircraft Company as vice president, engineering; president of American Systems Inc. of California; and as associate administrator of development of the Federal Aviation Administration.



MISS BLAIR, LEFT, CHECKS TUNNEL CLEARANCE

CAN DRIVE 'EM TOO

Miss Blair Directs Trucks

Airplanes can't always fly and when they join cars on the road the exacting job of moving them through traffic is handled at Northrop by a petite blonde woman who weighs less than the big double tires on the heavy trucks she bosses.

She is Maybelle Blair, manager of Highway Transportation for Northrop's Aircraft Division. Her latest job was responsibility for trucking the Northrop A-9A prototype close air support aircraft from its factory in Hawthorne to Edwards Air Force Base for initial flight tests.

The A-9A has a length of 53.5 feet, wingspan of 58 feet and a height of 17 feet. The wings were removed and the fuselage was carried in one trip and the wings in another.

To plan the transfer Miss Blair had to map the route, measure all underpasses and tunnels for clearance of the 17-foot tail section, check road curves and bridges, to insure that the big load could pass.

In addition she had to arrange road permits from Los Angeles City, Los Angeles County, cities of Glendale, Burbank and San Fernando. The trip began at midnight in order to avoid jamming traffic.

The 130-mile trip took exactly six-and-a-half hours. Miss Blair accompanied the truck, at times getting out and walking ahead to give signals as the heavy load inched through narrow tunnels.

While admitting that moving an aircraft over a highway is exacting work, Miss Blair said it was not particularly difficult.

"It is just a matter of everyone working together," she said. "Art Trowbridge of Transportability Design, made a cradle that fitted perfectly, our loaders, under the supervision of John Champion, dropped the plane in smoothly and then our drivers drove as if they had a cargo of eggs."

Miss Blair began at Northrop as a part time helper. She took her first permanent job in 1945, but dropped out for two years to play second base with the Chicago Cardinals, a professional girls' baseball team.

Her first job at Northrop was pedaling a bicycle to deliver mail. Then she graduated to driving a car and finally became a truck dispatcher.

At that time she decided that if she expected 50 male truck drivers to respect her she had to show them she could do anything with a truck that they could. She learned to drive the biggest trailer rig and then passed a state examination for a heavy equipment operators driver's license.

"I've been fortunate in the type of people I have been privileged to work with," she said. "This includes not only all our crews, but also John McNamara, our manager of Transportation, and especially Norman Girard of the Los Angeles city government, who was so helpful in getting us street clearances and then went along on the trip to give us a hand."

MISS BLAIR and truck driver Wayne Barnett.

Buckley Builds Kayaks for Boy Scouts' Summer Fun

For real summer fun, take a tip from the Eskimos. At least that's what Larry Buckley advises.

Mr. Buckley, who is with the Electro-Mechanical Division's Quality Control, builds and paddles kayaks, Eskimo-type boats.

He got into the Eskimo-boat building in 1956 as part of his work with the Norwalk Boy Scout Troop 549.

"We picked kayaks over canoes because the Eskimo boat is unsinkable," he recalled. "We build them with thin pine stringers which are screwed to supports. Then canvas is stretched over this frame, sewn and doped with lacquer which causes the canvas to stretch tight."

The only change he makes from the original Eskimo design is to enlarge the cockpit. "This is done so that if the boat turns over, the rider can get out."

The result is a light boat that can never sink, he says. "Often on long trips in the hot summer we fill them with water and float along submerged just under the surface of the river to keep cool."

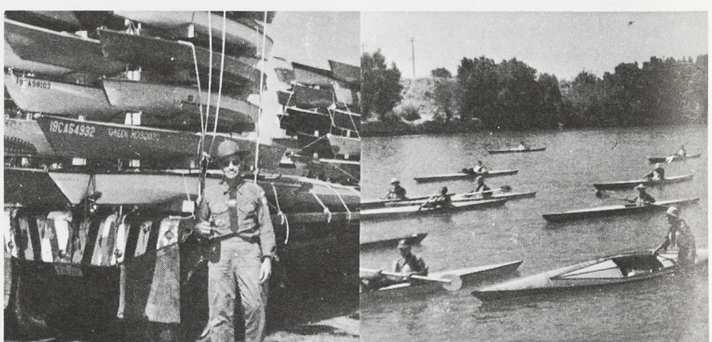
The first kayak trip was such a success that Mr. Buckley made copies of the plans which he made available to other scout troops. The number of boats grew and by the next year there were enough to make a kayak trip down the Colorado River.

River Trip

The highlight, as he recalls, was a 1959 trip down the Sacramento River from Redding to Sacramento.

"We had 110 kayaks coming down the river at the same time," he recalls. "There were boats as far as you could see. Each kayak holds only one occupant. But since they are so safe and each paddler is required to wear a life jacket, we were able to float boys as young as 11 years old."

Total cost is about $11 per boat. He still has some copies of the plans which Northrop employees can have if they'd like to try kayaking.



MR. BUCKLEY, LEFT; KAYAKS ON RIVER, RIGHT

PAULA IS A CHAMP AT NINE

Paula Saavedra, daughter of Shari Saavedra of the Aircraft Division is a basketball champion at nine years old.

Paula, who plays guard mostly, is a member of the 8-10 girls basketball team that won first place in the Lakewood Parks and Recreation Association tournament.

To win the city championship Paula's team had to come from behind in the last of their third playoff game to tie in the fourth quarter and then win in the third overtime.

Although the smallest member of the team, Paula is an expert at stealing the ball from the opposing side.

PAULA SAAVEDRA

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Triumph, 1968 Spitfire, Mark III, spoke whls., 21,000 mi., new clutch, $850. 213-672-8750.

Pontiac Tempest, new tires, $600. 213-676-2718.

Lincoln Continental, 1963, 58,000 mi., $500. 213-323-9003.

Volkswagen Camper, 1968, w/pop-top & Wesphalia int., extras, $2,100. 805-482-5451.

Station Wagon, 1962 Chev., 9-pass., V-8, new motor, $300. 714-528-5461.

Truck, 1967 Chev., ¾-ton, w/teardrop camper, 25,524 act. mi., a/c, p/s, p/b, V-8 eng., will sell camper sep., $4,500. 213-835-7668.

T-Bird, 1959, $150. 213-542-5260.

Datsun P510, 1971, 2-dr., 4-spd., mags, tach., radio, pwr. d/brakes, 7,300 mi. $1,895. 213-374-6727.

Oldsmobile, 1966 Cutlass convt., 50,000 mi., $1,200. 213-320-8085.

Oldsmobile, 1965 Delta 88, 4-dr. h/top, p/b, p/s, tilt steering whl., a/c, AM radio, $695. 213-325-8752.

Volkswagen Camper, 1971, pop-up roof, tent, $3,300. 213-374-8201.

Volkswagen, 1969 fastback, $1,300. 213-789-5791.

Volkswagen bus, 1964, $850. 213-842-8724.

MGTF, 1954, rebit. motor, $1,900. 213-288-3432.

Dune Buggy, VW, street legal, top, toe bar, $795. 213-320-7126.

Volkswagen, 1968, r/h, $875. 213-542-3459.

Station Wagon, 1964 Malibu, auto. trans., p/s, 283 V-8, $400. 213-378-0501.

Pickup Truck, 1965 ¾-ton Ford, auto. trans., a/c, 68,000 mi., $1,195. 213-673-2843.

Dune Buggy, 1970, 40 h.p. VW, many extras, $1,200. 213-644-0866.

Cadillac, 1967 DeVille convt., min. bid $1,195, Credit Union ext. 1117.

Buick, 1969 Le Sabre, 4-dr. h/top, fact. a/c, r/h, p/s, p/b, $2,000. 213-530-1212.

Volkswagen Camper, 1967, German unit, pop-up roof, 8-ply tires, lug. rack, $1,995. 213-675-4318.

Miscellaneous For Sale

Ring, diamond, solitaire, approx. ½ carat, $250. 213-325-5859.

Motorcycle, 1969 Suzuki, 250 cc, dirt & st. equip., $450. 213-671-9067, 213-673-0306.

House, corner, 1½ yrs. old, 2-story, 4-bdrm., 2 baths, cathedral ceiling, f/place, f.a. heat, bltins, cpts., dps., Cerritos, $32,500. 213-860-3022.

Coffee Pot, 42 cup, avocado, West Bend elec., $8. 213-679-5506.

Outboard Motor, 5 h.p. Johnson, $65. 213-675-2005.

Truck Tires, 2 7.50x16 8-ply rated, mounted on 8 lug split rim whls., fits any ¾-ton Ford or Dodge, $25 ea. 213-371-2948.

Fishing Tackle, salt & f/water reels, rods & assort. tackle, $50. 213-755-6118.

Knitting Machine, Princess, 48″ wide, $40. 213-373-3386.

Mirror, 28″ x 48″, antique white, scroll design, $25. 213-326-0124.

Movie Projector, Ricoh, 8-mm, self-threading, fwd., reverse, self-contained carrying case, $50. 213-851-1376.

Trailer, 1968 Cardinal, Low Line, $900. 213-675-3541.

Motorcycle, 1967 Bonneville Triumph, rebit., $750. 213-325-2613.

Typewriter, IBM elec., $145. 213-673-5614.

Cassette, car stereo player, recorder, 8 tapes, $85. 213-292-9082.

Refrigerator-Freezer, 14 cu. ft. Philco Ford Frost Free, 14 mos. old, $250. 213-641-6322.

Motorcycle, Kawasaki 120 TR, $275. 213-372-3827.

Rugs, 7 Navajo, from 24x29″ to 76x130″, $20-$400. 213-374-6137.

Refrigerator, Frigidaire, 16 cu. ft., $45. 213-756-3669.

House, Gardena-Hollypark, 3-bdrm., 2 baths, serv. porch, bltins, covered patio, att. 2-car gar., $30,900. 213-323-8213.

Piano, small upright, walnut, $175. 714-528-6914.

Miscellaneous For Sale

Trailer, 16′ Fire Ball, self-contained, elec. bks., sleeps 7, $1,150. 213-699-8173.

Water Softener, large, $50. Box 501.

Bed, maple, twin, $20. 213-675-7316.

Band Saw, Power King, 12″ throat, ⅓ h.p. elec. motor, $100. 213-833-7903.

Boat, 11′ glass o/wood, $100. 213-644-2009.

Formal, burgundy bodice w/pink chiffon, worn once, size 11, $35. 213-860-8266.

Surfboard, 7′ Rick, $25. 213-374-8608.

Dressers, 2 white provincial, $125. 213-326-3136.

Tent, 9x16, $50. 714-524-9688.

Shotgun, Remington 1100, auto. 12 ga., shot 18 times, $100. 213-644-7941.

Acreage, 5 acres, 10 miles w. of new Hilton Hotel in Victorville, 10% dn., $13,500. 213-430-1952.

Motorcycle Trailer, 3-bike cap., hvy. duty, spare whl. & tire, $150. 213-323-2358.

Surfboard, Bing Foil, 7′, $50. 213-378-2790.

Crib, high chair, playpen, porta crib, $50 or sell sep. 213-377-5003.

Dryer, Kenmore, $20. 213-328-3438.

Dining Table, walnut, 4 chairs, brown tweed seats, $35. 213-635-7942.

Windows, 8 wooden, 28″ x 36″, $2 ea. 213-379-4517.

Utility Trailer, Sears, 4′ x 5′, metal top, whl. & tire, $200. 213-542-5691.

Trailer Hitch, Volkswagen, bolt-on type, $25. 714-525-8327.

Rotisserie & broiler, & shish kebab attach., Farberware, $53. 213-324-4475.

Surfboard, 7′4″, light wt., Creative Design, no dents, $70. 213-328-6662.

Acreage, 2½ acres, Antelope Valley, east side, water & elec. to prop. corner, $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Divan, 6′, & matching chair, Lawson style, med. green nylon, $100. 213-670-2564.

Stove, O'Keefe & Merritt, 4 burners, $80. 213-679-6395.

Boat, 16′ o/board, 35 h.p. Evinrude, $495. 213-379-5592.

Entry Door, custom, 36″ x 80″, $48. 213-674-3558.

Ring, Masonic Consistory w/diamond, $125. 213-530-0765.

Engine, 396 C.I.D. Lincoln, 100 mi. since complete o/haul, access. & trans. avail., $400. 213-676-3095.

Dog Kennel, extra lge., suitable for air freight, used once, $25. 714-832-5050.

Motorcycle, 1969 CL 125 Honda, low mileage, $225. 213-377-5897.

Camera, Polaroid mod. 210, flash attach., $30. 213-675-7915.

Lawnmower, Black & Decker, 18″, rotary, grass catcher, 50′ cord, used once, $50. 213-323-6840.

Mobile Home, 47′ x 8′, w/w cpts., new refrigerator, metal awning, $1,795. 213-675-6585.

Motorcycle, 1970 Honda Trail 90, street equipped, $300. 213-378-4422.

Bed, single, mattresses, box springs & frame, bookcase h/board, $35. 805-498-2787.

Pool, 12′ dia. x 3′ deep, w/filter & ladder, $60. 213-325-3675.

House, cust. blt. Mexican style, 4-bdrm., 3-bath, copper plumbing, 2,500 sq. ft., Catalina view, elec. bltins, 3-car gar., P. V. Pen., $61,900. 213-377-5055.

Clothes Poles, 2, lge., steel, $5. 213-534-2290.

Boat, 26′ Trojan Express cruiser, sleeps 4, galley, o/riggers, bait tank & pump, 10 hrs. since major eng. o/haul, $3,750. 714-894-5425.

Desk, steel w/wood grain nevermar top, 6-drwr., $60. 213-892-7972.

Bicycle, Schwinn, ladies 3-spd., $49. 714-892-1945.

Camera, Polaroid, color, M-60, used 3 times, access., $50. 213-676-4492.

End Tables, Danish walnut, $15 ea. 213-541-3000.

Yard Lounges, 2 redwood, $6.50 ea. 213-376-4831.

Gieger Counter, Hoffman, mod. 216-1, 4 digit scaler read out, 2 min. timer, A & B batt. check, $150. 213-676-6390.

Slide Projector, 35 mm, TDC Bell & Howell w/45 30-slide trays, $30. 213-374-4780.

Guitar, elec., hollow body, 6-string, 2 pick-ups, $75. 213-325-0448.

Sewing Machine, portable, Sew Rite, $35. 213-677-7421.

Mini Bike, Taco 99, 5 h.p., $60. 714-528-1180.

Miscellaneous For Sale

Couch, 8′, $30. 213-423-1363.

Stove, Kenmore Deluxe, tabletop mod., gas, dble. oven, 1 elec., $100. 213-676-5404.

Crib, new mattress, spring, $15. 213-644-3742.

Revolver, dble. act., Colt offc. mod., match 22, adjust. rear sights, case, $95. 213-370-7904.

Bible, lge. home type, King James version, never used, $50. 213-675-5755.

Mini Bike, Taco, new motor just installed, $70. 213-377-1074.

Bumper, front, Karmann Ghia, fits any yr. up to '71, $25. 213-329-2893.

Refrigerator, Frigidaire, $45. 213-756-3669.

Pool Equipment, Diatomaceous Earth Filter for up to 18′ dia. Doughboy, ⅓ h.p., $30, other items. 213-860-3450.

Motorcycle, 1967 Minarelli Testi, 50 cc scrambler, new 5-port head, $99.50. 213-377-2552.

Rifle, .270 Remington mod. 700 ADL, Weaver K4 scope, 3 boxes ammo, case, $125. 714-527-3554.

Acreage, 40 acres in Latigo Canyon, Malibu, old house, 3-car gar., water springs, drilled well, water tanks, access roads, $3,500 acre. 213-457-9600.

Motorcycle, Bultaco Lobito, 1968, 100 cc '68, completely rebit., many extras, $260. 213-322-1974.

House, 3-bdrm., 1¾ bath, family rm., f/place, $33,000. 213-327-2279.

Cemetery Lot, dble. interment, Inglewood Pk. Cemetery, $995. 801-394-5657 or Box 502.

Bicycle, 10-spd., $90. 213-672-2338.

Acreage, 4 acres, near Bend, Ore., $6,200. 714-838-1470.

Cemetery Lots, 2 single, Avalon Plot, Inglewood Pk. Cemetery, $300 ea. Box 503 or 916-459-3333.

House Trailer, 15′, sleeps 4, ice box, propane stove, 12 V., 110 V. & propane lights, $595. 213-927-0678.

Stove, self-clean, elec., $150, other items, various prices. 213-863-7547.

Lot, Lake Havasu, R1, lake view, $4,875. 213-377-9842.

Wanted to Buy

Exercycle, or similar. 213-372-7270.

Camera, 35 mm, & enlarger. 213-375-8460.

Dishwasher, portable, & kitchen stove, preferably gas, in good condition. 213-478-5784.

Camper Shell, for 8′ Chev. pickup, reasonable price. 213-291-0025.

Filter, capable of handling 1,000-1,500 gallons of water, & wheelbarrow. 213-833-6045.

Dune Buggy, in good condition, willing to do some work, reasonably priced. 213-679-8095.

Go-Kart, in operable condition, prefer small horse power. 213-831-6480.

Free (To Be Given Away)

Pups, cockapoo, 4 males, 2 females, various colors, 6 wks. old. 805-497-2598.

Kittens. 213-370-6431.

Cat, frost point Siamese, adult male, neutered. 714-322-2578.

Rentals Offered

Cabin, Lake Arrowhead, family only, $55 w/end, $125 wk. 213-831-1745.

Apt, 2-bdrm., unfurn., sub. parking, pool, bltins, custom cpts. & dps., 10 min. to Northrop, Lawndale, $165. 213-670-6084.

Cottage, Ocean Bch., near Mission Bay, make reservations now, $80 wk. 714-826-2007.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, $125 1 wk., $200 2 wks. 213-375-2255.

Apt, 2-bdrm., 1½ bath, cpt., dps., all elec., adults, $185 mo. 213-372-7862.

Cabin, Big Bear City, 2-bdrm., 1-bath, $40. 213-320-6486.

Condominium, 1-bdrm., in Mammoth, sleeps 5, complete kit. & supplies, pool, rec. rm. $30 wk/end, $70 wk. 213-785-1405.

House, Bass Lake, $150 wk. 213-374-3702.

Cabin, Lake Gregory/Crestline, walk to lake, sleeps 6, furn., $30 wk/end, $75 wk. 213-545-6313.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn. incl. linens, $35 wk/end, $100 wk. 213-823-1788.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 wk/end. 213-326-7232.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40wk/end, $70-$90 wk. 213-868-8040.

Scout-O-Rama Set for June 3

The 1972 Scout-O-Rama will be held Saturday, June 3, from 11:30 a.m. to 7:30 p.m. at three locations: Loyola High School, 1901 Venice Blvd., Los Angeles; El Camino Jr. College, 16007 Crenshaw Blvd., El Camino; Cerritos Jr. College, 11110 E. Alondra Blvd., Norwalk.

Emphasis is on "Scouting American Style," and tickets are available from any Boy Scout or Cub Scout at $1 each.

Banura Given School Honors

George A. Banura, son of Aircraft Division's Arturo Banura, has graduated magna cum laude from Northrop Institute of Technology.

In earning his bachelor of science degree, George Banura was a fall listee in "Who's Who Among Students in American Colleges and Universities," recipient of the Herbert W. Hartley Scholarship, and a ranked member of the Dean's List every quarter.

Rentals Offered

Cabin, nr. Arrowhead & Running Springs, sleeps 4-5, $35 wk/end, $90 wk. 213-370-7105.

Camper, 11′ Galaxy, 1971 Ford pickup, sleeps 6, $100 wk. & .05 mi. 714-544-0730.

Apt, unfurnished, 2-bdrm., new cpts. & dps., bltins, near Long Beach Fwy., $149.50. 213-426-4060.

Motor Home, 1971 Pace Arrow, 20′, sleeps 6, a/c, self-contained, fully equipped, insurance, $150 wk., $50 wk/end. 714-846-1858.

Condominium, 2-bdrm., Palm Springs area, furn., heated pool, $100 wk., $60 wk/end. 213-327-8994.

Apt, 1-bdrm., unfurn., Redondo King Harbor, 1 month's free rent, cpts., dps., gar. w/storage cabinets, $150. 213-376-6226.

Cabins, Lake Gregory & Crestline, reserve early, sleeps 6, $65 wk. 213-821-8150.

Rentals Wanted

House, 3-bdrm., Torrance area, no pets, $275 mo. 213-378-7208.

Personals

Thank you for sharing our sorrow. Your thoughtfulness, prayers, flowers & cards were appreciated. THE FAMILY OF FRANK COX.

Thanks to NRC & fellow employees for the flowers & cards received during my recent illness. JIM DYAR.

We wish to thank all those Northrop people who extended their kind expressions of sympathy at the passing of our husband & father. ILA ROMANO, CAROLE & MIKE.

We wish to thank all our friends at Northrop for the retirement party & gifts. RICHARD & DORINE VENCILL.

We wish to express our sincere appreciation for the kind expressions of sympathy at the passing of our wife & mother. HAROLD W. CHRISTENSEN & DAUGHTER, KAREN.

Thanks to all my friends at Northrop for your cards & gifts during my illness. GEORGIA CARLIN.

Our sincere thanks to the many friends in Dept. 5503 who so kindly remembered me during my surgery & convalescence. MR. & MRS. RALPH DYE.

Thanks for all the cards & calls during my recent hospitalization. JOE PILLOW.

I wish to thank all my friends at Northrop for their good wishes & lovely retirement party. A. VOOGD.

Sewing & alterations. 213-323-1476.

For Sale or Trade

Water Bed, $30 or trade for prof. hair dryer & chair. 213-675-6020.

NORTHROP'S LORE KRUMREICH, Nancy Wons and Sheila Bondi, from left, show high school visitors Julia Yellman, Susan Yozgott and Maria Alvarez through the Electronics Division facility at Hawthorne.

Division Hosts High School Students on Business Day

Three students from Hawthorne High School worked with the Electronics Division for a day as part of the school's Student's Business Day.

The program, carried on through the cooperation of Hawthorne High School and business firms in the area, gives participating students practical experience and businessmen a better knowledge of today's students and their abilities.

The students were Julia Yellman, Maria Alvarez and Susan Yozgott. Their Northrop guides for the day were Lore Krumreich, who coordinated the visit, Sheila Bondi and Nancy Wons.

As part of the day's experience, the three visitors interviewed Roy Kaufold, vice president and manager of the Navigation Department. Mr. Kaufold told the young ladies that opportunities for women were increasing in the aerospace industry, and particularly cited the importance of secretarial work at Northrop.

The students in turn told Mr. Kaufold that they had been impressed by the friendliness and helpfulness of all Northrop employees with whom they came in contact. This, they said, proves the truth of a statement they saw on a sign when they first arrived: "Northrop is a good place to work."

Family Finances Class Scheduled

A second evening class in Personal and Family Finances is scheduled for the Hawthorne facility from 5 to 7:30 p.m. each Thursday evening for five weeks, starting June 22, in the executive conference room.

Topics covered, according to instructor Jud Morris, Personnel Planning and Development, include budgeting, financing major purchases, loans and interest rates and fundamentals of real estate transactions.

Mr. Morris said the first class which started in April was so successful the course is being repeated. Certificates will be awarded for successful completion of the course, and those interested should call Gail Wise, ext. 425, Hawthorne.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

'T' Group Plans Picnic Meeting

Jud Morris, Personnel Planning and Development, has scheduled the second series of "T" group meetings for Electronics Division employees and their wives (or husbands).

According to Mr. Morris, the basic objective of the group is to "learn to see ourselves as others see us."

The initial meeting will consist of an all-day picnic in Holly Park, Saturday, June 24, to get acquainted, outline the basic ideas of the group and make detail plans for future meetings.

To enroll, contact Mr. Morris or Gail Wise at ext. 425 before May 31.

Helicopter Loading Study To Be Made for U.S. Army

A $70,000 research contract has been awarded Northrop's Electronics Division by the U.S. Army's Air Mobility and Development Laboratory, Fort Eustis, Virginia.

"The contract provides for our technicians to establish experimentally the aerodynamic characteristics of various cargo loads that would normally be carried by Army crane-type helicopters," stated David Liu, project engineer. "Northrop's Low Speed Wind Tunnel Facilities and Large Amplitude Moving Base Flight Simulator will be utilized in the research effort."

The program will provide data for the development of systems and techniques which will enable a military helicopter, with external load capabilities, to haul equipment and supplies at higher speeds without adversely affecting the aircraft's stability and controllability.

BLOODMOBILE

The next Northrop Bloodmobile is scheduled for June 9 at Hawthorne. Electronics Division personnel who wish to volunteer as blood donors may contact Arnah Pakes, division Blood Bank chairman, at ext. 261, Hawthorne. Blood donated is credited both to the individual donor and to the Northrop account.

Holiday Coming

The Electronics Division will observe Monday, May 29, as one of the company's regular paid holidays.

The holiday schedule for the rest of the year is Independence Day, Tuesday, July 4; Labor Day, Monday, Sept. 4; Thanksgiving Day, Thursday, Nov. 23; and the traditional Christmas vacation with its ten-continuous days holiday.

JANSSEN SERVES ON COMMITTEES

In keeping with the Electronics Division's expanding role in community relations, H. L. Janssen, director of Industrial and Public Relations, has accepted appointments to two college advisory committees.

His first appointment is to the advisory committee on Business for Los Angeles Southwest College, which is responsible for the course curriculum at the county-run junior college.

Mr. Janssen will also serve on the Los Angeles Harbor College General Advisory Committee, formed to develop increased communication between the college and the surrounding community.

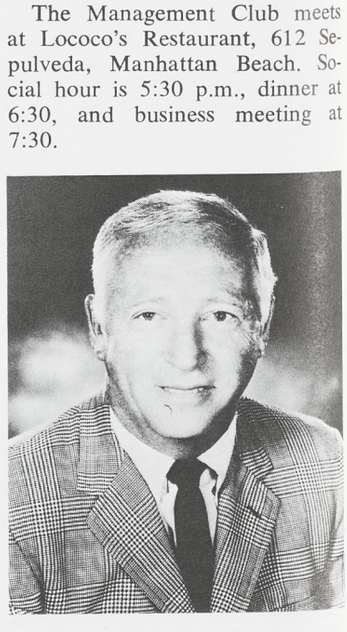
Mgt. Club to Hear Trojan's Coach

John H. McKay, USC athletic director and Trojan head football coach, will be the guest speaker at the June 14 meeting of the Electronics Division Management Club. His subject will be management and motivation of athletes.

One of America's most successful football coaches, Coach McKay is in his 13th year as head coach with a 12-year record of 88-33-6.

Coach McKay currently serves as first vice president of the American Football Coaches Association.

The Management Club meets at Lococo's Restaurant, 612 Sepulveda, Manhattan Beach. Social hour is 5:30 p.m., dinner at 6:30, and business meeting at 7:30.



Mr. McKay

HIP PROGRAM GRADUATES 126

(Continued from page 1)

Division one night a week for 25 weeks.

Sixteen courses were offered in such subjects as tool repair, office practices, computer programming, sheet metal, basic print shop operation, microscopy and photography.

Classes were taught by Northrop specialists who volunteered off-duty time to help the students develop employable skills, experience and self-confidence.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 6 | June 1972

'Thumbs up—test OK,' signals Art Gandy, JIFDATS test director.

First Phase Tests For JIFDATS End

"These men have worked long hours and given up many of their weekends in the interest of the program. They deserve all the recognition they can get, for a job well done."

With these words, Art Gandy, Test director, announced the successful completion of the first phase of the Joint Services In-Flight Data Transmission System (JIFDATS) flight test program at Edwards AFB.

Northrop, prime contractor to the U.S. Naval Air Systems Command, is responsible for the design and development of JIFDATS, which collects, encodes and transmits data from reconnaissance aircraft to a ground station where it is processed and presented on photographic film for viewing.

"The equipment has performed in accordance with specifications, and we are very happy with the test results," said Mr. Gandy.

Four aircraft are used in the tests to satisfy the joint services (Army, Navy, Air Force, Marine Corps) requirements, two RF-4C Phantoms, an OV-1C and an OV-1D (Mohawk).

The test program, which began October 1971, moves to Ft. Rucker, Alabama, in August for operational test and evaluation of the OV-1 systems. One month later, the RF-4C systems evaluation tests will begin at Eglin AFB, Florida.

Final flight tests are expected

(See JIFDATS, page 6)

COLLINS MOVES TO EDINBURGH

Al Collins, publications specialist, Product Support subsection, has been assigned to the Ferranti facilities in Edinburgh, Scotland, to coordinate data exchange requirements for Northrop's preparation of maintenance manuals for the Ferranti Inertial Navigation Attack System used in the Harrier VTOL/STOL aircraft.

Mr. Collins, who is expected to stay in Edinburgh approximately one year, will also represent Northrop at Smiths, Ltd. and Plessey, Ltd., London, England, who are supplying additional data for the Harrier manuals.

Hourly Wage Adjustment Awaits Pay Board's Okay

Hourly personnel will receive an eight cent per hour cost of living adjustment effective May 20, subject to Federal Pay Board approval, Ross F. Miller, vice president and general manager announced.

"Payment of this pay adjustment will be made as soon as possible after Pay Board approval has been received," Mr. Miller said. "The pay boost was made in accordance with our current Cost of Living Plan which is based upon the U.S. Department of Labor Consumers Price Index. The index for March was 144.3, providing for the maximum of eight cents an hour."

Future cost of living adjustments will be based upon the previous plan of quarterly readings of the Department of Labor's Consumer Price Index.

Contingent upon Pay Board approval, the new plan will become effective during the next calendar quarter and the first adjustment will be made in November 1972.

Osborn Receives Certificates

Abe Osborn, reliability project engineer, P3C Omega, has been awarded the "Reliability Engineer Certificate" by the American Society for Quality Control.

To qualify for the award, a nominee must have an applicable degree and extensive experience in the discipline.

Mr. Osborn, who holds an EE degree from Northeastern University, Boston, is a registered professional engineer in Massachusetts, and recently received a Certificate of Designation in Quality Control from UCLA.

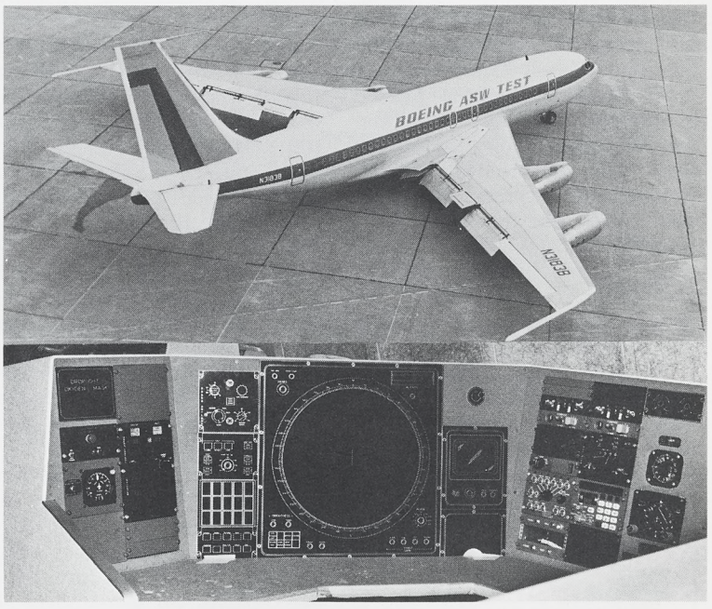
He has been in Electronics Division Reliability Engineering for over five years, and previously served in the same capacity at the Ventura Division.

JACK MEYERS ELECTED ALDERMAN

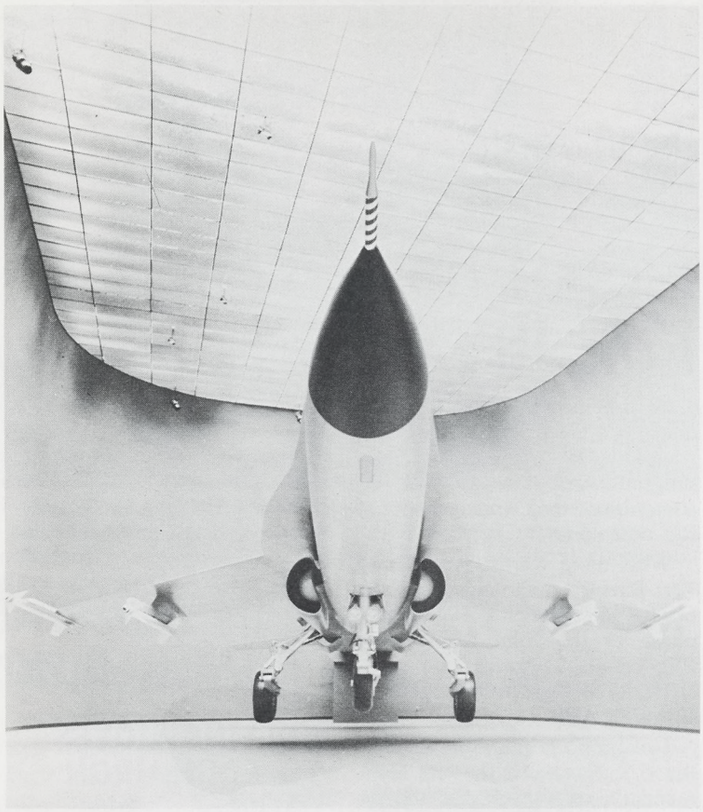
Jack R. Meyers, Quality Control superintendent of the Northrop-Dakota, Inc. New Town operation, has been elected to the position of alderman on the New Town, N.D., city council.

Mr. Meyers, an 11-year veteran of the Electronics Division, easily outdistanced his four competitors in the April 4 election, receiving 187 votes out of a possible 301.

The city council is composed of the mayor and four alderman, and Mr. Meyers' responsibilities will include a variety of city services, such as operation of the water and sewage systems.



THE ELECTRONICS DIVISION is participating in tests being conducted by Boeing, Seattle, Wash., to demonstrate the potential of the Northrop Omega system for solving ASW type problems. Pictured above is the Omega navigator panel as installed in the Boeing ASW test airplane. Current test flights are confined to the Pacific Northwest.



THIS VIEW OF NORTHROP'S new P530 air superiority fighter shows why the aircraft is known as the Cobra. The leading edge extension of the wing, which flanks the forward part of the fuselage, closely resembles the hood of a Cobra. The P530, however, with its quick-firing M-61 gun and air-to-air missiles, will have a bite more deadly than its namesake. The new fighter is designed to meet the defense needs of the Free World in the 1975-1990 time period.

NADC May Plan Thai Airport

The National Executive Council of Thailand has advised Northrop Airport Development Corporation (NADC) that a decision has been made to construct a new international airport at Bangkok to serve the growing needs of this major air transportation hub of Southeast Asia.

A special committee headed by Air Marshal Dawee Chullasapya has been established by the Royal Thai Government with instructions to negotiate a contract with NADC for the total airport program including the master plan, design and construction. NADC, located in Vienna, Virginia, is a subsidiary of Northrop Corporation.

The NEC stated that, although the present airport at Don Muang is being expanded to take care of the needs for the immediate future, design and construction of a completely new international civil airport must begin immediately in order to keep pace with expanding aviation traffic, tourism and Thailand's rapid economic growth.

It is estimated that the first phase of this new international airport will be completed in five years and will cost approximately 100 million dollars (U.S.). Additional phases of expansion are planned over a subsequent 25-year period. It will be one of the most modern and efficient airports in the world and will be designed to handle Thailand's passenger and air cargo growth for 25 years from 1977.

The new airport site will be at Nong Ngu Hao approximately 20 kilometers southeast of Bangkok.

After meetings with Air Marshal Dawee Chullasapya, Glenn R. Lord, president of NADC, said, "We consider it a great honor to have the opportunity to work under the direction of the Royal Thai Government and to participate in building one of the world's most modern and efficient international civil airports."

HOLIDAY COMING

July 4 will be observed as one of Northrop's regular paid holidays.

Another long weekend is scheduled for Sept. 4 when the company will observe Labor Day.

Rex Madeira Brings Wide Experience to Northrop

Rex H. Madeira is president of Northrop Worldwide Aircraft Services, Inc., formerly Page Aircraft Maintenance, Inc., which Northrop acquired this month.

Mr. Madeira, who attended the University of Oklahoma's School of Mechanical Engineering, began his career in the aerospace industry as an instructor at the Spartan School of Aeronautics in 1941.

In 1945 he was made assistant coordinator of the Inter-American Program, sponsored by the U.S. Government, which established an aircraft engine training program for 250 Latin American students.

This was followed by duty as assistant director and then director of Spartan's School of Aviation Mechanics. After a tour as project engineer for special assignments, he became assistant director of training in 1953 and director of Training in 1954. In this position he was responsible for over-all management of Spartan School of Mechanics, School of Flight Engineering, School of Flight Ground School, School of Meteorology, School of Aircraft Instruments, and logistics support for the schools and students.

In 1956 he became sales manager for Spartan Aircraft Division and in April 1957 joined Page Aircraft Maintenance Inc., as executive vice president and general manager, moving to president in February 1964.

MR. MADEIRA

NORTHROP PAYS CASH DIVIDENDS

Northrop's board of directors has declared a quarterly dividend of 25 cents per share on Northrop common stock. The dividend is payable June 24 to shareholders of record June 5.

The board also declared a quarterly dividend of 36¼ cents per share on Northrop $1.45 cumulative preferred stock, payable July 8 to shareholders of preferred stock of record June 20.

A-9A Cachet Covers Ready

A-9A first flight covers are available for stamp collectors at Personnel Activities. Through arrangements with the NRC Stamp Club, the covers are printed with an attractive cachet of the A-9A. They have an 11 cent air mail stamp and were cancelled by the post office on the day of the flight. They are priced at 35 cents each or three for a dollar.

CIRCUS TICKETS

Personnel Activities at the Aircraft Division has reserved 250 seats at The Forum for the Ringling Bros. and Barnum and Bailey Circus on Sunday, July 30.

The performance starts at 6 p.m. Box seats are $5.25, but employees pay $4.25.

Wilcox System Tested by FAA

Wilcox Electric Company's Mark I/C Instrument Landing System is currently undergoing an extensive FAA field and flight test evaluation program at Dulles International Airport near Washington, D.C.

The Mark I/C system consists of a single frequency localizer station, capture effect glide slope station, two marker beacon stations and remote control and status display equipment.

The localizer and glide slope systems have met all performance requirements, according to FAA engineers. Test results of the remaining equipment have not been announced.

Prior to delivery of the system to the FAA, the Mark I/C completed reliability demonstration testing without a single failure. The system was operated successfully for more than 28 days. This exceeded the contractual requirements for demonstrated Mean Time Between Failure (MTBF).

Wilcox is a wholly owned subsidiary of Northrop.

ONCE AGAIN THE EVER-POPULAR Northrop Night at Disneyland, sponsored by NRC, provided Northrop families and their friends a wonderful time.

Old Pin Earrings Rewards Wife

When Leo Grizel, Electro-Mechanical Division, received his 25-year service pin recently he was left with obsolete 15 and 20-year diamond-studded pins.

Instead of putting the old pins away, he used a bit of gold-plated loop wire, two small rings and a couple of ear pieces to turn them into earrings for his wife, Elna.

"At first I wondered about the propriety of my wife wearing my old pins, but then I decided that she had contributed a lot to my working with Northrop and that she was as much entitled to wear the service awards as I am," he said.

The earrings were presented to her on Mother's Day.

The editorial in the adjoining column is excerpted from a new McGraw-Hill editorial series on America.

→

EDITORIAL

'—Promises to keep, and miles to go before I sleep.'—Robert Frost

IN 1976 America will celebrate the 200th anniversary of a unique promise: the promise of "Life, liberty and the pursuit of happiness." It is good to pause and look back on what we have done to make this promise come true, and also to look ahead, because America has new promises to keep.

We have promised to make life more meaningful. To conserve our natural resources. To restore our environment. To clean our air, our water, and to reshape our cities.

We have promised to safeguard public health. To give new hope to the poor and to assist the disadvantaged and enrich the lives of the old. All these things and more we have promised ourselves, but how do we match promise with performance?

There are no simple answers, but as we stand hesitant at a crossroads, it is perhaps time for a little plain talk.

There is no easy path that will take us where we want to go. The easy paths lead backward or nowhere. There is no way to produce less and have more. No way to sit on our aspirations and expect things to take care of themselves.

Somebody, somehow, has got to do the conserving, protecting, restoring, rebuilding, safeguarding, educating and enriching.

The only way to do a better job in all these areas is to work at the job. Work harder, or smarter, or both. And most importantly, work together. There is no liberal way, no conservative way, no business way, no labor way. There is only a productive or a non-productive way.

THE productive way calls for all of us to join together. Not in perfect harmony, not in ultimate brotherhood or in some high-flown crusade. But in the simple recognition that we all—business, labor, government and private citizens have a job to do.

Thus we all have contributions to make. The original promise was set forth in the Declaration of Independence. The new promises of America call for a new Declaration of Interdependence.

This awareness of our mutual dependence is the new Spirit of '76. It cannot be proclaimed, imposed or legislated. It will begin only when people look at our goals on one hand, forget our petty squabbles on the other, and conclude, "We can't get there from here."

There are, at this crossroads in time, many paths to take, but there is only one way to go. Forward. Together.

For we have promises to keep and miles to go before we sleep.

General Geranopoulos Has Had Busy, Dramatic Life

Northrop International's office in Athens, Greece, is one of the busiest in the company's worldwide network. Currently General C. D. Geranopoulos, director, is working on such programs as the F-5E program in Greece, follow-on target contracts on Crete for the Ventura Division, the new Athens International Airport for Northrop's Airport Development Corp., and other programs of interest to Page, Hallicrafters and the Electronics Division.

Being busy is no novelty to General Geranopoulos — being busy is the story of his life. He was born in Cairo, Egypt, of Greek parents in 1914. Shortly after his birth, his parents returned to Athens where he attended the First Gymnasium, the oldest Athenian school in the old part of the ancient city. This, he says, qualifies him to call himself a "pure Athenian."

He graduated from the Hellenic Air Force Academy in 1936 and was a World War II fighter pilot. After Greece was occupied by the German army, he tried unsuccessfully to escape and then organized a resistance group called "Homer" for the classical Greek poet.

By 1942 he had expanded Homer into an intelligence network of 500 people, including three sabotage groups. The Germans arrested him in 1944, but he escaped two weeks later in a small fishing boat, making his way through Turkey and the Middle East to Egypt where he rejoined the exiled Hellenic Air Force.

He returned to liberated Greece in 1945 to command the Hellenic Air Force Academy. From 1947 to 1949, during Greece's war against the Communist guerrillas, General Geranopoulos served in various positions with his country's Tactical Air Command.

In June 1954 he was promoted to general and assigned to NATO's 6th Allied Tactical Air Force, returning to Greece in 1955 as deputy chief of staff for Operations. In 1957 he became a major general and vice chief of the General Air Staff.

He left the Hellenic Air Force in 1961 as a lieutenant general and in August became a part-time consultant to Northrop International. In March 1963 he became a full-time consultant to Northrop, and in August 1969 became Northrop's resident director in Greece.

During the 11 years he has worked for Northrop, General Geranopoulos contributed to the F-5 program in Greece, the Greek TV network built in Greece by Northrop Page Communications' Page-Europa subsidiary, and the Target Services for NATO on Crete.

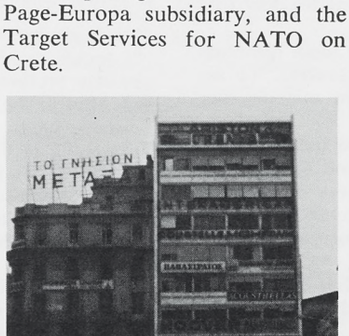
GENERAL GERANOPOULOS

'Bud' Montag Is Named NAS VP

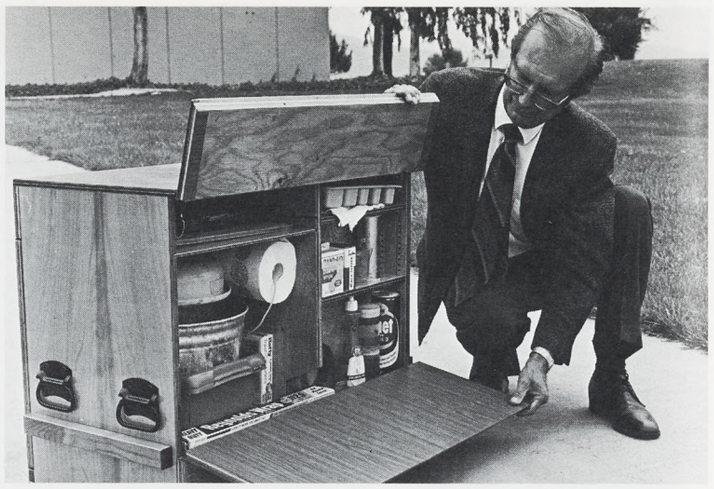
B.W. "Bud" Montag, Jr., has been appointed vice president of Northrop Architectural Systems, according to James E. Ware, president.

Northrop Architectural Systems, located in the City of Industry, is a wholly owned Northrop subsidiary engaged in manufacturing architectural metal products for homes and buildings.

Mr. Montag is a 16-year veteran of Northrop. Prior to being elected vice president, he was controller for Northrop Architectural Systems, coming here a year ago from a similar position with Northrop Carolina. Previous to his assignment to Carolina, Mr. Montag was with the Ventura Division.



NORTHROP GREECE OFFICE



VERN LIPPERT AND PACKED CAMPING BOX

SPACE-SAVER

Lippert Helps Girl Scouts

Next time Northrop's Vern Lippert and his wife, Joanne, take their Girl Scout troop on a camping trip they'll be taking more equipment but it will take up much less space.

Mr. Lippert, an Engineering planner at the Ventura Division, has designed and produced a special camping equipment box. The new multi-purpose wooden container holds enough cooking and eating utensils, tools, and related necessities to accommodate a patrol of eight to ten girls.

A Girl Scout leader for two years, Mr. Lippert said the troop "used to pack all the stuff in three or four cardboard boxes." He saw some other equipment boxes and "I combined all of their good features into one."

The result after a month of design and two months of part-time fabrication would please a professional cabinet-maker.

"Actually, we've already tried it out twice and it works just fine," explained Mr. Lippert. A special feature includes a folding aluminum stand which can be used to raise the box to a level providing a counter-type work space.

Bigger items, such as tents, lanterns, stoves and food are packed separately. "What the box does is take all of the little loose ends and puts them all together," he noted. The girl in charge of the box has a checklist so that all of the 67 items can be accounted for.

Mr. Lippert became active as a Girl Scout co-leader with his wife, after she took over a troop three years ago. And Mrs. Lippert's interest was sparked by a Girl Scout daughter, Theresa, 15.

"We have 35 girls in Cadet Troop 307," Mr. Lippert said, "and a big waiting list." The Woodland Hills youngsters are in the 13-15 age group. But Theresa is not in their troop. She's in another one.

The Lipperts want to make sure Theresa develops her own personality with her peers. "But she'll be going with us this summer when we take the troop to a Colorado Ranch for 10 days," he adds.

Girl Scouting means a lot to the Lipperts. Aside from running the troop ("actually the girls run it themselves"), Mr. Lippert headed his area's annual fund-raising drive this year and Mrs. Lippert was in charge of the same campaign the previous year.

But in concentrated time, the equipment box represents one of the biggest efforts. Mr. Lippert needs three more for his other patrols by next fall. "This time the other fathers will help," he says with a laugh.

SPACE-SAVER UNPACKED

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Pickup, V-8 Ford, 1956 custom cab, F-100, ½-ton, 312 eng., stick shift, o/drive, $700. 213-756-1812.

Buick, 1967 Skylark, 2-dr., vinyl h/top, r/h, p/s, auto., new bks., $1,200. 714-832-5050.

Jeepster, 1948 Willys, convt., Chev. powered, auto., flr. shift, $285. 213-679-3889.

Rambler, 1962, 4-dr. sedan, 46,000 orig. miles, 6-cyl., std. shift, $400. 213-329-6420.

Mustang, 1968, 390 eng., p/b, p/s, Cruisomatic trans., a/c, AM-FM stereo radio, $1,799. 213-431-9620.

Chevrolet, 1960, 2-dr., r/h, 6-cyl., std. shift, $200. 213-673-2637.

Mustang, 1965 convt., 3-spd. stick, reblt. eng., $600. 213-534-3410.

Chevrolet, 1964 Super Sport Impala, p/s, r/h, $550. 213-644-3742.

Karmann Ghia, 1966, new clutch & tires, $850. 213-375-9527.

Oldsmobile, 1963 F-85 Cutlass, rear body part damaged, Hydra. trans., posi-trac. diff., a/c, p/s, p/b, radio, $125. 213-679-9195.

Pontiac, 1959 Sky Chief, good eng., $150. 714-644-5265.

Fiat, 1968 124 sport cpe., $1,300. 213-325-0487.

Karmann Ghia, 1958, '60 eng. & trans., needs body work, $150. 213-324-2690.

Pickup, 1968 Ford F-100 Fleetside, Gem top camper, auto. trans., r/h, 2 bltin bunks, $1,875. 714-521-5552.

Volkswagen, 1965, needs body work, $175. 213-347-7861.

Ford, 1968 Falcon, 2-dr., auto., r/h, p/s, $695. 213-671-4550, 714-638-1164.

Mustang, 1965, 2-dr. h/top, 289 V-8, 35,000 mi., r/h, p/s, p/b, auto. trans., $950. 213-675-6885.

Volkswagen, 1968, r/h, 36,000 mi., $1,095. 213-644-0738.

Chevrolet, 1957, '64 Corvette 327 hi-perf. eng. & posi-trac. diff., 3-spd. Munsey trans., $395. 714-737-2742.

Panel Truck, 1963 Chev., 6-cyl., floor shift, $600. 213-542-1946.

Station Wagon, 1963 Rambler Classic 500, 6-cyl. short blk. eng., r/h, 12 mo. warranted batt., auto. trans., $225. 213-677-0518.

MG TF, 1954, reblt. motor, $1,900. 213-288-3432.

Chevrolet, 1964 Nova, auto., 6-cyl., 2 dr., $600. 213-676-4464.

Volkswagen, 1959, r/h, $250. 213-823-4258.

Buick, 1964 Riviera, new tires, $600. 213-542-5070.

Buick, 1956, $200. 213-327-2252.

Volkswagen, camper, 1971, 13,000 mi., $3,100. 213-421-2121.

Toyota, 1971 Corolla, AM-FM radio, new tires & brakes, $900. 213-329-1861.

Volkswagen, 1970 1600TL fastback, electronic fuel inject., disc brakes, Blaupunkt AM-FM radio, $1,800. 213-834-7589.

T-Bird, 1957, new paint, $1,595. 213-833-3402.

Ford, 1964 Fairlane, 2-dr., 6-cyl., $250. 714-828-5843.

Dodge, 1965 Custom 880, 2-dr., a/c, p/b, p/s, $325. 714-830-4236.

Plymouth, 1965 Fury III wagon, a/c, radio, p/s, p/b, rack, orig. owner, eng. o/hauled, $650. 213-377-1074.

Subaru, 1971 Deluxe 360, 3,000 mi., $500. 213-265-2935.

Maverick, 1970 Grabber mod., 200 cu. in., 3-spd. man. trans., $1,600. 714-644-5752.

Miscellaneous For Sale

Cartop Carrier, fully enc., water proof, lge., approx. 4′ x 7′ x 18″, $15. 213-375-4574.

Dog, reg. pomeranian, male, 2½ yrs. old, pedigree papers, $75. 213-542-7564.

Organ, Thomas, mod. 565, walnut, solid state, $850. 213-888-8018.

Bicycle, Raleigh chopper mod., $35. 213-454-2675.

Hardtop, for 1963-67 Corvette, $150. 213-631-3008.

Antiques, dishes, glassware, 38 items, $2 & up. 213-375-8536.

Exercise Bike, used little, $30. 213-326-5731.

Miscellaneous For Sale

Acreage, 2½ acres, off Pearblossom Hiwy. in Antelope Valley, 10% dn., $11,500. 213-430-1952.

Lens, 35 mm 2.8 Auto-Vivitar, Pentax fitting, $25. 213-328-4128.

Camper, 1969 mod. 800, Californian, 9′ cab-over, dble. SS sink, ice box, stove, stabilizers, La Jaga loader, $1,150. 213-375-1324.

Couch, Hide-A-Bed, $35. 213-426-4060.

Travel Trailer, 1971 22′ Roadliner, fully self-contained, 12,000 b.t.u. roof air, Honda rack, $3,300. 213-542-4624.

Amplifiers & pre-amplifiers, Heathkit, $39 or sell sep. 213-376-4831.

Motorcycle, 1971 Honda 100 SL, 700 mi., $325. 805-492-2177.

Accordion, Contello, 120 bass, $200. 714-778-4517.

Tent, Sears, 9x18, pole carrying case, sand stakes, $95. 213-323-7171.

Mobile Home, 1966 Golden West, 20′x57′, 2-bdrm., 2 bath, bltins, f/air ht. & cooler, cpts., dps., awnings, skirts, stor. bdg., $11,500. 213-835-7668.

Metal Detector, Tech-Tronic, lightweight mod., $50. 213-675-2005.

Saxophone, $100. 213-672-8750.

Wall-Beds, 2 fold-ups that swing out from door-jamb mount, 1 roll-away, $80. 714-892-1945.

Guitar, elec., Harmony semi-acoustic mod., Humbucking pickup install., $69.50. 213-377-2552.

Archery Bow, 70-lb. pull, recurve, $35. 805-498-2787.

Pups, springers, AKC, $75 & up. 213-994-5683.

Airplane, Tripacer, 150 h.p., full panel, 360-channel radio & omni head, at Torrance Airport, $3,800. 213-378-1523.

Cabin Tent, Sears, 10′x16′, 1-yr.-old, $120. 213-328-7880.

Dining Room Chairs, 6, Mediterranean style, $9 ea. 213-860-3022.

Acreage, 2½ acres, Antelope Valley, E. side, water and elec. to prop. corner, $400 dn., $45 mo., 7% int., $4,950. 213-378-1026.

Rocker Arms, Chrysler 392 MT alum., $50, many other parts. 213-371-2531.

Amusement Center, Magnavox, color TV-stereo-record player, Mediterranean, $600. 213-663-3622.

Surfboard, 7′ 4″, light wt., by creative design, $50. 213-328-6662.

Washer & dryer, Westinghouse, matched, elec., $50 ea. 213-833-7903.

Hairsetter, Sears elec. mist, 20 rollers, used once, 1 yr. guarantee, $7. 213-670-4645.

Sewing Machine, Sears zig-zag, portable, case, table, $50. 213-675-5965.

Motorcycle, 1968 Montgomery Ward Mojave, street-type, 250 cc, less than 4,000 mi., $225. 714-772-7394.

Cemetery Lots, 2, Garden of Benediction, Rose Hills Memorial Pk., $700. 714-839-2764.

Audio Stereo, record changer & 4-track tape cartridge recorder-player combo on 1 base, $135. 213-322-1892.

Pistol, Frontier Scout, 22 single action, 6 shot, w/holster, western style, $40. 213-370-3821.

Trailer Hitch, E-Z, 2 yrs. old, for 14′ to 18′ trailers, $60. 213-676-5787.

Bar, Mediterranean style, 5′ long, padded armrest, stools, $150. 213-373-4336.

Cats, Siamese, pr. male & female, neutered, declawed & all shots 15 mos. old, $50 pr. 213-324-4507.

Golf Shoes, ladies 6a/3a, white, worn once, $10. 213-379-3300.

Engine, Plymouth, 426 c.i. Wedge, complete balanced, heads redone, $225. 213-675-3195.

Fertilizer Spreader, 20″, $10. 213-676-3050.

Motorcycle, Heathkit Boonie, trail type, almost new, $125. 213-695-1687.

Playpen & car bed, infant's seat, bumper pad for full size crib, $22. 213-374-7625.

Tires, for dune buggy, 11.00-16 high floatation, mounted on wide Porsche whls., $75. 213-821-9110.

Acreage, 15 acres, adjacent to California City Airport runway, 10% dn., $270 mo., $2,000 acre. 714-892-5801.

Tent Trailer, 1968 Nimrod, attach. side room, $450. 714-847-5220.

Crib, full-size, new mattress & teething rails, $10. 213-324-9904.

Coffee Table, Italian marble, 16″ h. x 20″ w. x 60″ long, $45. 213-645-0709.

Beds, maple, twin, $25. 213-541-3000.

Sofa, sec. 3-pc. blue-green brocade, $120. 714-842-1962, 714-531-4318.

Miscellaneous For Sale

Camper, 8′ Merced, cabover, butane stove w/oven, sink, 16 gal. water tank, 75 lb. ice-box, $795. 213-370-6400.

Mobile Home, 1971 Villa West, 24x52, 2 bdrm., 2 bath, Alcan siding, air, w/skirting, carport, covered porch, utility shed, many extras, $17,500. 213-835-1443.

Motorcycle, 1970 Kawasaki, 238 cc, st. legal, $350. 213-532-7846.

Motorcycle, 1955 Triumph, 650 cc, $400. 213-323-1476.

Home, steps to surf, 3-bdrm., 2 baths, f/place, sunporch & apts., 2-bdrm. & 1-bdrm., $72,500. 213-379-4471.

Bedroom Set, 5-pc., king, contemporary, cherrywood, mattress & box springs, $275. 213-379-4572.

Floor Polisher, w/shampooer & scrubber, Regina, 2-spd., $30. 213-329-2842.

Refrigerator, GE & dinette set, $40. 213-679-2409.

Motorcycle, 1964 Yamaha, 80 cc, step thru frame, st. legal, $125. 213-377-5450.

Travel Trailer, 1972, fiberglass, 12′, gas/elec. refrig. & lights, 3-burner stove, htr., 12 gal. water tank, awnings, $1,395. 213-378-2369.

Wedding Set, combination white & yellow gold, $500. 213-866-4104.

Motorcycle, 1970 Hodaka Ace 100, many extras, $225. 213-325-7759.

Boat, 18′ 7″ Glastron Sea Flite, 90 h.p. Evinrude motor, trailer, extras, $1,200. 213-371-0714.

House, 3-bdrm. & family rm., 1¾ ba., P.V. f/place, h/wood floors, f.a. heating, det. dble. gar., near Aircraft Div., $32,500. 213-327-2279.

Recording Tape, Scotch, 14 new 7″ reels, $1.45 ea. 213-673-5614.

Dinette Set, modern walnut & black vinyl, round table w/leaf, 4 chairs, $45. 213-672-1090.

Lot, 50′ x 170′, & lifetime membership in Lake Elizabeth Ranch Club, golf course & lake, terms or $2,500. 805-252-2468.

Clothes, junior & girl's, new & used, sizes 10-14, $2-$10. 213-833-7819.

Seats for VW, 1 front, 1 rear, gray, $15. 213-541-2843.

Wash Basin, Vitrous china w/cabinet below, complete w/fittings, $10. 213-328-0887.

Cemetery Lots, 4, Green Hills, $250 ea. or $800. 213-784-3802.

Refrig.-Freezer, Admiral, frost-free, 2-dr., 13 cu. ft., 4 yrs. old, $100. 213-644-4859.

Refrigerator, Westinghouse frost free, white, $100. 213-373-3067.

Boat, 1970 Minisport, 40 h.p. Merc., trailer, $995. 714-644-1195.

Trans-a-Cord, Milton Mann, & amplifier, 3 yrs. old, $595. 213-371-8766.

Slim-Gym orig., $35, moving, many other items. 213-679-2864.

Wanted to Buy

Rug, approx. 18′ x 20′, any color. 213-372-3827.

Engine, 5 to 10 h.p., air-cooled preferred. 213-374-2915.

Nazi Daggers, WW II, will pay from $25-$1,000. 213-375-4312.

Northrop News & Radioplane Target publications, prior to 1966, 1 copy of ea. consecutive biweekly or monthly, to complete historical collection. 805-495-4595.

Free (To Be Given Away)

Pebbles, load, lge. size. 213-676-6726.

Parakeet, incl. cage. 213-375-1685.

Poodles, twin silver miniature, AKC, papers, 8 yrs. old, to good home. 213-860-3450.

Kittens, 2 part Siamese & Burmese, 3 full Siamese. 213-679-8095.

Rentals Offered

One-half Duplex, 2-bdrm., Imperial Village, unfurn., no pets, small child o.k., gar., $140 mo. 213-675-2075.

Apts, 1 & 2-bdrm., unfurn., cpts., dps., stove & refrig., adults only, near Aircraft Div., $115 & $150 213-676-8283.

Apts, new duplex, 2-bdrm., 2 baths, bltins, dps., cpts., pvt. gar., 1 block from Northrop, $200 mo. 312-772-1789.

House, on 5 acres, Big Bear Lake, 2-bdrm., f/place, furn., all utils., sleeps 8, $100 wk., $45 wk/end. 213-325-8267.

Cabin, Lake Arrowhead, family only, $55 wk/end, $125 wk. 213-831-1745.

Vacation Cabins, Idyllwild, 1 & 2 bdrm, stream, patio, f/place, $30-$40 wk/end, $70-$90 wk. 213-868-8040.

Cabin, 2-story on Big Bear Lake, sleeps 12, f/place, all elec., boat dock, $125 wk., $45 wk/end. 714-893-0410.

Rentals Offered

Apt, 2-bdrm., unfurn., cpts., dps., bltins, air-cond., pool, adults, no pets, $155. 213-325-2512.

Motor Home, 1971 Pace Arrow, 20′, sleeps 6, a/c, self-contained, insurance, $150 wk., $50 wk/end. 714-846-1858.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn., incl. linens, $35 wk/end, $100 wk. 213-823-1788.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 wk/end. 213-326-7232.

Studio Apt, 2-bdrm., 2½ bath, sub. gar., adult bldg., Inglewood, $225 mo. 213-670-6084.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, $125 wk., $200 2 wks. 213-375-2255.

Cabin, Lake Arrowhead, close to lake & village, patio, f/place, $75 wk. 213-845-5949.

Condominium, Palm Springs area, furn., 2-bdrm., heated pool, $100 wk., $60 wk/end. 213-327-8994.

House, 2-bdrm., stove & refrig. optional, by Century & Aviation, $190 mo. 213-644-3531.

Vacation Cabins, Lake Gregory & Crestline, sleeps 6, reserve June-Sept., $65 wk. 213-821-8150.

Motor Homes, 18′, $190 wk., $59 wk/ends, $28 day; 20′, $215 wk., $69 wk/end, $32 day. 213-676-8949.

Cabin, near Arrowhead & Running Springs, sleeps 4-5, $35 wk/end, $95 wk. 213-370-7105.

House, 3-bdrm., 1 or 2 working girls to share, walking distance to Hermosa Bch., child &/or pets ok, $95 mo. plus ½ of utils. 213-379-4641.

Apt, new, ocean front, 2-bdrm., 2 bath, bltins, f/place, open beams, no pets, couple preferreed, $350 mo. 213-374-0142.

Motor Home, 24′ Islander, sleeps 6, 115 vac. pwr. gen., a/c, fully equipped, self-contained, $200 wk., & 5¢ mi. 213-596-0024.

Chalet, Lake Gregory/San Moritz area, 3-bdrm., 2 baths, split tri-level, fully cptd., elec. stove, walk to lake, $55 wk/end, $160 wk. 714-626-8115.

House, Arrowhead, lake view, sleeps 6, blk. from lake & village, $50-$60 wk/end, $120-$130 wk. 213-821-8143.

Rentals Wanted

Garage, in South Bay area. 213-830-3816.

Personals

I want to thank all the people of Dept. 5754 for the cards & money collected at the time of my father's death. Friends at this time are very much appreciated. ROBERT L. WILLYARD.

Ride Wanted, 8 a.m.-4:42 p.m., between 190th St. & Artesia Blvd., W. of So. Bay Shop. Center, to Eng. Science Ctr., Aircraft ext. 1913, 213-374-6727.

Ride Wanted, 8 a.m.-4:42 p.m., Ravenspur Dr., Palos Verdes, to Plant III, Aircraft ext. 4901, 213-377-4727.

Car Pool or Ride Wanted, 8 a.m.-4:42 p.m., Rolling Vista Dr. & Palos Verdes Dr. N., Lomita to Eng. Science Ctr., Aircraft ext. 2313, 213-323-8213.

To each of my coworkers & friends in the Model Shop & Research Test Labs, your expressions of sympathy, floral tributes, & donations to the cancer fund in my wife's name, meant so very much to us. LARRY B. DAVIS & FAMILY.

Wish to join ride pool, 8 a.m.-4:42 p.m., Encino to Hawthorne Corp. Lab Bldg., Aircraft ext. 4808, 213-987-1570.

Ride Wanted, or share driving from Newbury Park to Mariposa, 7 a.m. to 3:42 p.m., Mariposa ext. 6211, 805-498-1235.

We wish to thank all our friends for best wishes & gifts received on our retirement. We leave with fond memories. HUGO & EUGENIA EPPOLITE.

The family of Camille Camet wish to extend our deep appreciation to Northrop for the blood donation & thank you all for your kindness. CHUCK & MARIE SPILLMAN & WIFE JACKI.

I would like to express my sincere gratitude to each & every one who so kindly remembered me during my recent surgery & convalescence. OLLIE CARTER.

We wish to thank all our friends at Northrop for the retirement party, good wishes & gifts. We shall add them to our many fond memories. ART & MARION WEBB.

For Sale or Trade

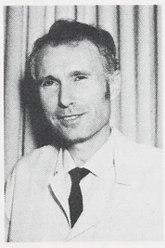
MGB, 1971, $2,300 or trade for car of equal equity. 213-671-2042.

Boat, 43′ Chris Craft, twin engs., live aboard facilities, w/docking in Marina Del Rey, $20,000 or might trade for house, or consider leasing boat. 213-823-7701.

Northrop Service Awards Received by 26 Employees

Twenty-six Electronics Division employees will qualify this month for five, 10, 15, 20 or 25-year Northrop service awards.

The 25-year man on the list is Raymond Brady of the Photolab in Hawthorne, who began his career in 1947.



Mr. Brady

Mr. Brady's first position with the company was in Reproduction operating the only working multilith press. He has been associated with reproduction and graphics work since, and five years ago became a graphics copy cameraman.

Other service award recipients this month include:

Hawthorne

Twenty years: Robert Sanders and John Sekiguchi.

Fifteen years: John Lukesh, Virgil Wilson, Charles Cook, Rupert Starling, Jr., Henry Parker and Mary Nelson.

Ten years: Gladys Whitener, John McIntyre, Bill Dykes, Wayne Taylor, Kenneth Dohrmann, Billie Burgett, Edward Ross, Richard Wood, Albert Young, Angela Trzyna and Paul Vance.

Five years: Frank Deleo, Gene Murphy and Susan Beckmann.

Palos Verdes

Twenty years: Milton Sumner and Robert Marsh.

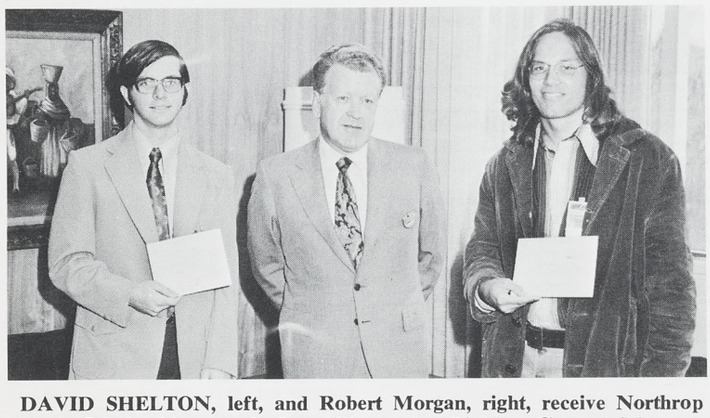
Ten years: Florence Petersen.

Sanders Presents Paper on Omega

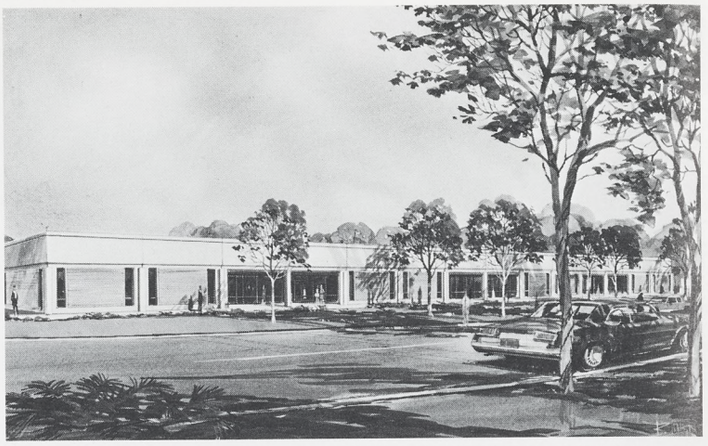
Robert C. Sanders, project manager, Radio Navigation group, presented a paper on the Northrop Omega system at the National Aerospace Electronics Conference (NAECON) held May 15, 16, and 17 in Dayton, Ohio.

Titled "The Omega Navigation System; Its History, Application and Versatility," the paper explored early research in long-range radio wave propagation techniques and the evolution of the current Omega system.

Special emphasis was placed on the advantages of the computer-augmented Omega Receiver as exemplified by the Northrop ARN-99.



DAVID SHELTON, left, and Robert Morgan, right, receive Northrop Merit Scholarship awards from Electronics Division General Manager Ross F. Miller. Robert, who is the son of Marion Morgan, publications typist, graduated from Palos Verdes High School with a variety of honors including two departmental awards (mathematics and science), the Lee Solomon Award, Bank of America Achievement Award in science, Governor's Scholar Award and Medical Advisory Committee and Palos Verdes Junior Women's Club scholarships. David, whose brother, Richard attends the University of California at Irvine on a Northrop scholarship, graduated from Savanna High School, Anaheim, and is the son of George Shelton, Integrated Logistics Support specialist. David won the Law Day Citizenship Award, Bank of America Achievement Award in science, Fair Enterprise Medallion in economics, Gemco Scholarship Award, and Imperial Bank Scholarship Award and was elected Physiological Student of the Year and Biological Student of the Year. He was nominated Outstanding Teenager of the Year and received honorable mention for the Kiwanis Citizenship Award. Robert plans to attend Harvard this fall, and David is enrolled at the University of California at Irvine.



ARCHITECT RENDERING SHOWS NEW BSL OFFICES

TO EDEN LANDING

BSL Relocates Facilities

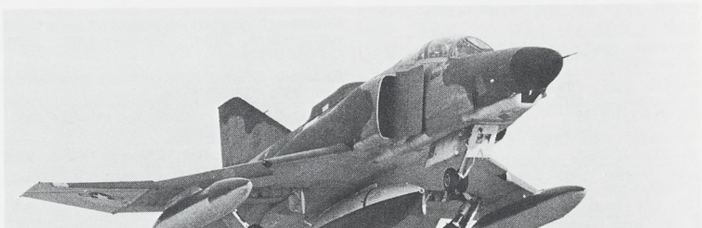
Berkeley Scientific Laboratories' Medical Data Systems Division will relocate to Hayward, Calif., early this summer, occupying offices and manufacturing facilities at the Eden Landing Industrial Park.

"We see the move as a necessity," H. W. Turney, vice president and general manager, said.

"The new facility is ideally located at the center of the San Francisco Bay area, and offers us easy accessibility to all modes of transportation.

"Eden Landing represents a substantial improvement, not only in location, but in production capability as well," Mr. Turney added. "Our continued growth in the medical field is certainly enhanced by this move."

Berkeley Scientific Laboratories is a subsidiary of the Electronics Division.



RF-4C Phantom Takes Off For JIFDATS Test

JIFDATS—Tests Under Way

(Continued from page 1)

to be completed in November 1972.

The flight test crew includes Al Garreffa, Dave Cumberland, Don Mazzeo, Rich Petros, Dick Miller, Hermann Rittner, Mel Parrish, Don Schultz, Mr. Gandy and Tim Luers.

The crew is assisted by John Overholser, Roy Jackson and Joe O'Conner.

Photo processing is handled by Chuck Lotspeich, Ed Burt, Tom Leighton, Larry Dietz, Walt Davison, Francis Tolen, Steve Davison, Joe Herarra and Mike Murphy.

JIFDATS Test Performance Briefings Are Frequent

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California Vol. 30, No. 7 July 1972

JOHN BLOODWORTH, left, discusses shelter applications with Warren Schreyer.

Contract Awarded for Field Shelter Test Program

Electronics Division is program manager for a U.S. Marine Corps field shelter test program under a contract awarded by Naval Facilities Engineering Command.

According to John Bloodworth, project manager, three major subcontractors will be working with Northrop in preparing specifications and building prototypes for seven types of shelters, including knock-down and rigid structures for electromagnetic interference shielding, storage, maintenance and hangars.

Laboratory and field tests of prototypes will be conducted by Northrop at Hawthorne; at the Naval Air Test Station environmental test chamber, Pt. Mugu; and at USMC Camp Pendleton facility.

Warren Schreyer, project engineer, said, "In addition to the prototypes, we expect to deliver to our customer complete specifications and build-to-print drawings which will enable the Marine Corps to procure shelters as re-

(See FIELD SHELTER, page 6)

KORNEGAY CALLED FOR MARINE DUTY

Tom Kornegay, supervisor, Cost Estimating, Electronics Division, is being ordered to two weeks of active duty training starting August 7 at the Marine Corps Base, Twentynine Palms, where he will be assigned as a personnel officer.

Mr. Kornegay, a Marine Reserve lieutenant colonel, is a member of Volunteer Training Unit 7, an aviation unit of the Marine Air Reserve Training Command at Marine Corps Air Station, El Toro.

He has been with Northrop four and one-half years.

Closed Mgt. Club Meeting to Hear Dr. N. Nyetski

Dr. N. Nyetski, former Russian space scientist, will address the Electronics Division Management Club August 23 at Lococo's Restaurant, 612 Sepulveda, Manhattan Beach.

Due to security requirements and the sensitive nature of Dr. Nyetski's presentation, non-member guests are not invited to the August meeting, but members are assured that his topics are of wide-ranging interest, pertaining directly to current projects.

Dr. Nyetski's appearances have been heralded as "shock treatment — amazing"; "exciting and revealing"; "a real coup"; "outstanding."

Reservations should be made early, as one of the largest turnouts in the history of the club is expected.

Ferguson Appointed General Manager

David N. Ferguson, formerly vice president and manager of the Precision Products Department, Norwood, Mass., has been named vice president and general manager of the Electronics Division.

Mr. Ferguson replaces Ross F. Miller, who headed the division since it was formed in February 1969. Mr. Miller has been promoted to the presidency of Northrop Page Communications Engineers operations in Iran, where Northrop is building that country's Integrated National Telecommunications System.

In announcing the new assignments, Thomas V. Jones, Northrop president, said Mr. Ferguson's appointment retains within the Electronics Division "the kind of leadership so essential to continued success and growth."

Mr. Ferguson joined Northrop 16 years ago and has been associated with high technology programs in the defense and space industry for more than 20 years.

He began his career as a research engineer with the Massachusetts Institute of Technology's Instrumentation Laboratory and was closely associated with some of the earliest successful work which opened the field of modern inertial guidance and control.

After joining the Precision Products Department, he rose to the position of deputy manager, Operations, and guided the department to its position as the world's foremost producer of high performance gyroscopes. Under his direction, the department's further expansion into systems development has been a natural outcome of successful growth.

Mr. Ferguson is a graduate of Northeastern University. He is a member of the American Society of Naval Engineers, the Institute of Navigation, the U.S. Naval Institute, and the Museum of Science, Boston.

Mr. Ferguson

JOSEPH YAMRON NAMED PPD MANAGER

Joseph Yamron has been appointed vice president and manager, Precision Products Department, replacing David N. Ferguson. Mr. Yamron is a graduate of the Massachusetts Institute of Technology and has completed advanced studies in engineering.

Mr. Yamron

He joined Northrop recently after serving as vice president of Sanders Associates. His 23 years of experience in the aerospace industry also includes 10 years with United Aircraft Corporation where he served as vice president of Systems Engineering.

The appointment was announced by Mr. Ferguson, who said: "Mr. Yamron's extensive background covers products and systems with a wide variety of scope and breadth. His proven capabilities and his experience will become increasingly important to PPD and the Electronics Division in achieving planned future objectives."

An MIT graduate, Mr. Yamron has also held teaching appointments at MIT and Rensselaer Polytechnic Institute.

NRC PICNIC SET

NRC has set August 27 as the date for the annual picnic to start at 11 a.m. Location will be the El Dorado Park in North Long Beach. Soft drinks and ice cream will be furnished. There will be games for all ages. So bring your own lunch and have an old-fashioned picnic.

Figge to Head California's Jaycees Senators Group

Fred Figge, program director, on the advanced air superiority fighter wing structure program within the Structures and Materials R & T Development, Aircraft Division, has been elected president of the Junior Chamber International Senators of California organization.

A senator is an honorary life membership sponsored by the Junior Chamber of Commerce. It is comprised of former Jaycees who have made outstanding contributions to the Junior Chamber of Commerce, but who have generally reached the mandatory age limit of the organization. Mr. Figge has been a senator since 1961.

According to Mr. Figge, there are about 400 senators in California, including President Richard M. Nixon, who was recommended for membership through his contributions as a former member of the Whittier Junior Chamber of Commerce.

LAGUNA FESTIVAL

The Northrop Recreation Club has made arrangements for employees to attend the Laguna Festival of Arts on Saturday, August 26, at the Irvine Bowl.

The club has obtained 92 reserved loge seats and will have two buses for transportation to the bowl with departure from Gate 5 at Hawthorne at 5 p.m.

Tickets are available at Aircraft Division Personnel Activities and will be sold only as a ticket plus bus package for $9.50.

RETIREE CLUB TRIP

The Northrop Retirement Club has scheduled a trip to Las Vegas on September 27, 28 and 29.

George Sanborn, tour chairman, states that the cost of the trip is $35 for two nights and three days which includes bus fare, hotel and all meals while in Las Vegas.

Travel Club Sets Tour Meetings

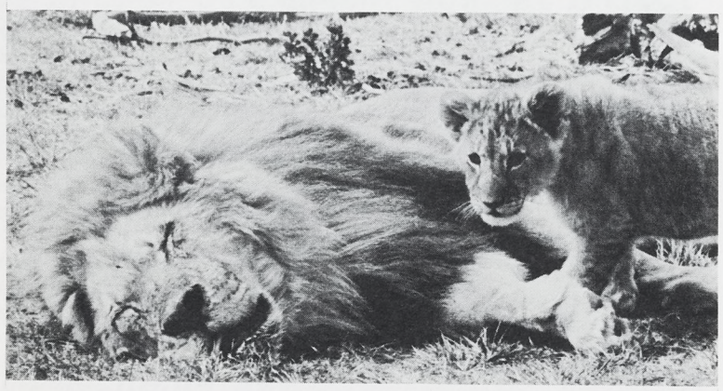
Northrop Travel Club has scheduled a meeting July 21 at the NRC Clubhouse at 8 p.m. to discuss two upcoming tours.

The first tour departs September 26 for 11 days to Alaska. Fly to Vancouver, then take an inland passage tour via many Ports O'Call to Skagway. Tour price, which does not include tax, is $449 for air fare, hotels, sightseeing and some meals.

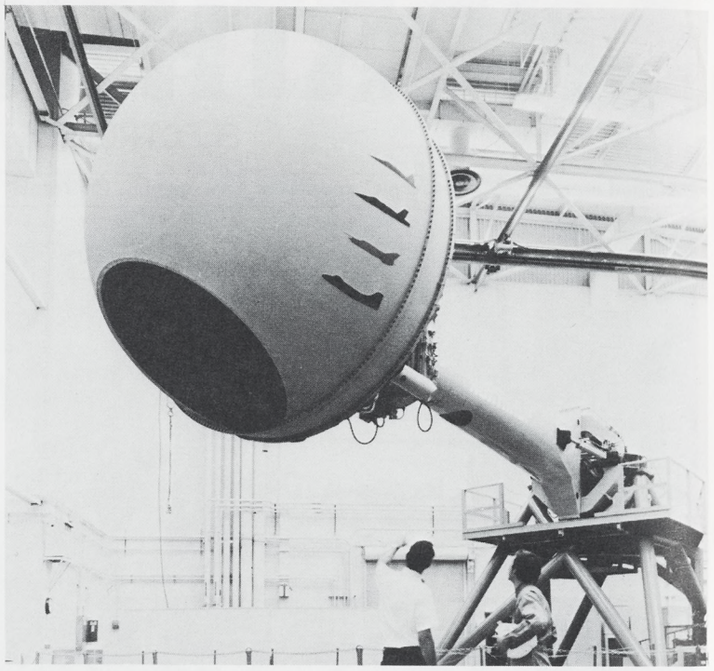
The second tour is the Caribbean cruise which departs on November 30 via New Orleans and Miami. On this tour there is a choice of a 10-day, 4-island tour for $469, or a 17-day, 10-island tour for $699, plus tax.

Another tour, always of interest to employees, is the annual Hawaiian Holiday. A kickoff meeting for this trip will be held at the Alondra Club on August 11 at 8 p.m. Price of the tour is $376.

NRC RECOMMENDS



A SAFARI CLUB Membership Card, available through NRC Personnel Activities, is your discount passport to a trip to Africa without leaving California. Lion Country Safari in Orange County is a unique "zoo" where the animals roam free and the human spectators are "caged" in their cars. In addition to seeing the free roaming animals, who often come right up and peek through the windshields at the strange people, your Safari Club card is good for unlimited use on all rides, including a tour down the Zambezi River and a jaunt in a paddle boat shaped like a hippo. Discount tickets through NRC are $4 for adults, and $2.50 for the kids.



SIMULATOR PERMITS 'FLYING' BEFORE PLANE IS BUILT

Northrop Flight Simulators Verify Designers' Ideas

Flying airplanes before they are built is an everyday occurrence at Northrop's Aircraft Division. The "flying" in this case is accomplished at the Flight Simulator facility, one of the most advanced in the world.

For more than a decade, Northrop scientists have been continuously furthering flight simulation state-of-the-art. The simulators they have developed have become an invaluable tool in determining the validity of aircraft designs.

Simulators, through the use of advanced computer systems, can accurately represent the motions of any aircraft. This can be accomplished even though the aircraft is still on the drawing board.

Northrop's family of simulators range upward in increasing sophistication and realism. They include basic fixed-base instrumented cockpits, a Rotational-Visual Simulator and a large Amplitude Flight Simulator.

The Large Amplitude Flight Simulator is unique in its combination of motion and wide angle visual cues. It has been used extensively for development and research programs related to the company's new A-9A close air support aircraft, P530 air superiority fighter, and other advanced aircraft designs.

Utilizing this simulator, Northrop can develop and have pilots evaluate the combination of aircraft flying qualities and control system characteristics by realistically "flying" the airplane while it is still in the design stage.

Modifications and improvements can then be made in the design process, giving added assurance that the airplane will fly as intended without major modification once it is built.

Pilots who fly the Large Amplitude Simulator sit in a cockpit enclosed in a large hemisphere. The cockpit and the hemisphere are gimbal mounted on the end of a 30-foot beam, providing roll, pitch and yaw movements. The beam is supported on a two-axis gimbal from which the pilot experiences vertical and lateral motions.

Reality of Flight

The reality of flight is further experienced by the pilot through the use of projectors which depict sky, earth and target images onto the inside wall of the hemisphere.

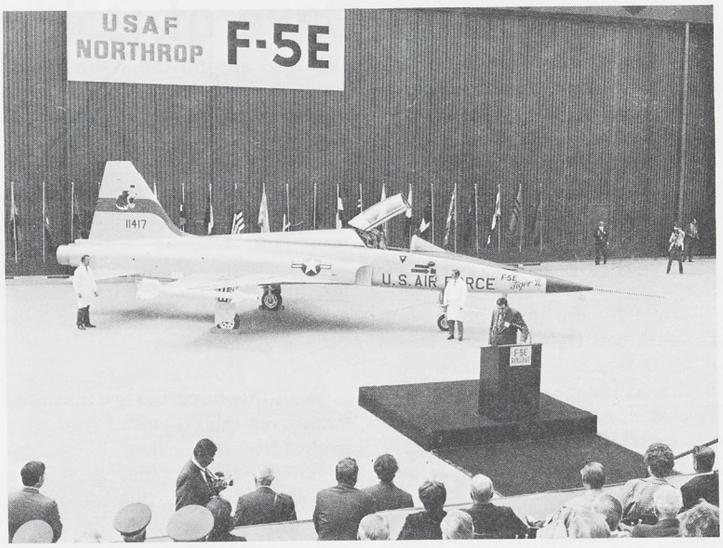
In the near future Northrop plans to use the Large Amplitude Simulator for pilot training effectiveness evaluation studies, including air-to-air combat and air-to-ground weapons delivery tactics.

Northrop's Rotational Three-axis Flight Simulator is designed to simulate profiles such as V/STOL takeoff and landing, air-to-ground weapons delivery and general low-altitude operations.

Northrop has also developed for NASA a Differential Maneuvering Simulator which is now in operation at NASA's Langley Research Center, Virginia.

Highlights Of The F-5E Tiger II Rollout

T. V. JONES AND GOVERNOR REAGAN DISCUSS THE F-5E



WELKO GASICH ANSWERS QUESTIONS FROM AUDIENCE

'CONGRATULATIONS TO ALL FOR A JOB WELL DONE'—MR. JONES

To All Northrop Employees:

All of us can take great pride in our new F-5E Tiger II International Fighter. The impact of this aircraft, both at home and abroad, will be felt for many years to come. Locally, the F-5E will help stabilize our employment and maintain Northrop's position as a world leader in the design, development and production of tactical fighter aircraft.

Nationally, the F-5E will make a major contribution to the U.S. balance of trade and offset the activities of a growing number of strong, nationalized industries in other countries who have challenged the United States' position as a world leader in aerospace technology and the sale of aircraft abroad.

Overseas, and perhaps most importantly, the F-5E will serve as a symbol of the belief that advanced technology applied to the defense needs of Free World nations can make possible "peace through security."

This aircraft is a fitting tribute to the men and women of Northrop who devoted thousands of hours to its design, development and production.

My sincerest congratulations to all of you on a job well done.

Thomas V. Jones
President

EXPLORER SCOUTS

GENERAL STEWART

AFTER CEREMONY, CROWD TAKES A CLOSER LOOK

DIGNITARIES POSE BEFORE THE F-5E TIGER II

Search for Relics Turns Into Hunt for Cave of Gold

A search for the ancestral home of the Aztec Indians has turned into a search for a cave of gold for two Northrop men.

They are Don Bodewig, Aircraft Division, and Dick Hess, Electronics Division, who are associated with a third gold hunter, Cal Butcher, a Long Beach printer.

Originally the three began seven years ago trying to find traces of an Indian tribe that once lived in the Salton Sea area. This lost tribe was, according to a legend, the forerunner of the Aztecs of Mexico.

Their search ended when the area was closed to provide an Apollo test ground. In the meantime, they uncovered another legend of a lake in a lost cave. The lake supposedly was fed by an underground river that flows through a series of caves. According to the legend, gold was so plentiful around the shore of the lake that Indians used to pick handsful of nuggets to use for trading.

After a long search of the general area, one day they found an odd flat area while descending a mountain. Digging into it, they found lumps of calcium carbonate like that formed into stalagmites and stalagtites by water dripping into caves.

Hopeful Sign

With this hopeful sign that they were over the collapsed roof of a prehistoric cave, they began excavating. During the past two years, they have dug down 45 feet. The ground is getting looser and contains more calcium carbonate, indicating that they may break out soon into the main cave area.

Since they can't all get away at the same time, the three have been going up alone or in pairs whenever they can.

They work with light mining equipment, including small charge blasting. The work area is covered by a "tunnel claim" which permits them to dig 3,000 feet in search of minerals. Then if minerals are found, they can file an appropriate mineral claim.

Present indications are that they are definitely over a cave structure. Whether or not it is the legendary cave of gold is something that only further excavation will prove.

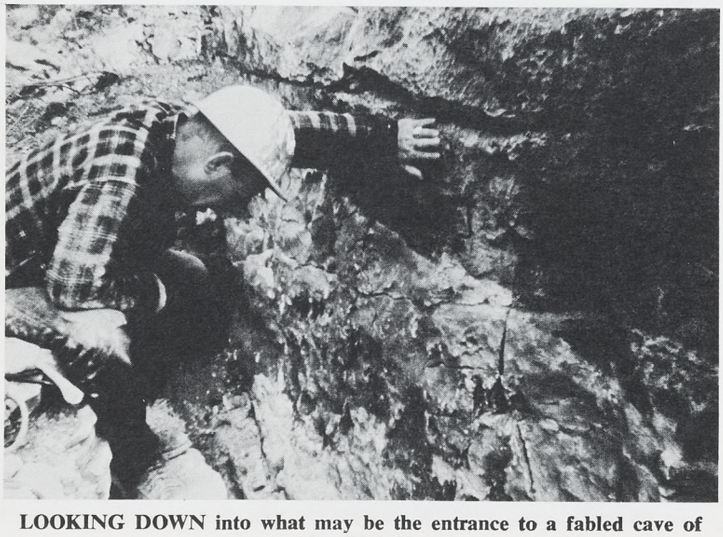
"If it is," they say, "that will be great. If it isn't, we will have uncovered an unknown cave anyway. The fun we've had and the healthful outdoor work will have made it all worthwhile even if we never get to fill our pockets with legendary gold nuggets."

COUNCIL ELECTS JAMES E. WARE

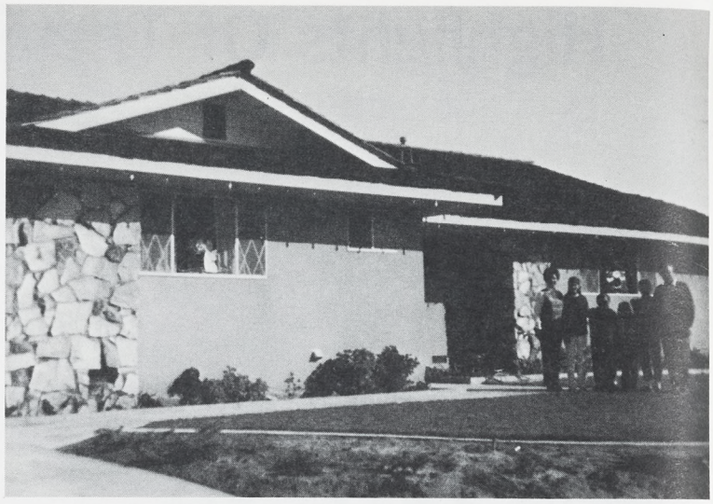
James E. Ware, president of Northrop Architectural Systems, has been elected a director of the City of Industry Manufacturers Council.

The council, which replaced the Industry Chamber of Commerce in 1970, has as its goal the continued stimulation of economic growth of the city and the solution of problems common to the manufacturing community.

Programs are directed at personnel, purchasing, transportation and chief executives of the member companies, and encompass industrial development research, publications of specific interest and plant location assistance.



LOOKING DOWN into what may be the entrance to a fabled cave of gold is Dick Hess.



THE DI RISIOS AND THEIR DO-IT-YOURSELF HOME

DO-IT-YOURSELF

DiRisios Build Own Home

"Home, sweet home," means just that to Nick DiRisio, Electro-Mechanical Division, and his family. They recently finished a 12-year project to build their own home.

The dream house actually began in 1960 when Mrs. DiRisio began a list of things she wanted to incorporate in the design if it should ever get built. Nine years passed before these ideas could finally be used. They were not, however, lost years for they gave the DiRisios time to consider many plans before they began.

During these years of planning, they bought a lot in Olinda Village, Brea, and then Nick drew his own plans. It took him a year to complete the 17 drawings.

The plans were approved by the Brea Building Department and work began on June 8, 1969. A Northrop co-worker Bob Littell volunteered to help Nick level the ground with a borrowed transit. Nick then built his own form for his raised foundations.

Many Advisors

His sole previous experience was some building work he had done as a child helping his father, but lack of experience was no handicap. "Northrop has people with experience in just about every field," he said. "Whenever I had a problem, I was always able to find someone who could advise me on what to do."

As a result, he was able to do all the work from foundation to roof except the rough plumbing, plastering and cabinet work which he subcontracted.

Friends dropped around occasionally to lend a hand, but most of the work was done by himself, his wife, Jean, and their children, Fred, Debbie, Gary and Janet.

As for Nick, he worked three-and-a-half hours each night after he left his work at Northrop, using a spotlight for illumination. He worked an additional 10 hours on Saturdays and Sundays.

The house was sufficiently finished to move into before Christmas last year, but the DiRisios did not consider it really finished until all landscaping had been put in.

This was recently completed and a 12-year-dream of a truly "home, sweet home" has come true.

Dividend Is Paid By Credit Union

The Northrop Credit Union—which serves the Aircraft, Electronics and Electro-Mechanical Divisions, declared a semi-annual dividend at the June meeting of its board of directors, according to Credit Union President R. A. Lindsey.

The dividend is at the annual rate of six per cent and was paid to shareholders of record as of June 30, 1972. The amount of $258,873.34 was distributed to 9,840 shareholders. The dividend is the same as that declared by the Credit Union board of directors in December.

Mr. Lindsey said that increased earnings by the Credit Union would depend upon increased use of the Union by its members. He pointed out that Credit Union charges, in most instances, are less than those of other financial institutions. Thus, utilization of the Credit Union not only saves members money on their own borrowing, but also results in higher dividends which are returned to them.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Porsche, 1970 911T, chrome whls., elec. sun roof, 16,000 mi., $5,800. 213-374-2932.

Dune Buggy, Berry Mini-T, 1600 eng., many extras, $3,450. 213-783-6632.

Scout Wagon, 1969, r/h, wide whls., V-8, new tires & brks., $2,495. 213-378-1026.

Chevrolet, 1963 S.S. Impala, $250. 213-532-8289.

Dart, 1969, 2-dr. h/top, 225 cu. in. eng., p/s, p/b, $1,500. 213-860-3450.

Volkswagen, 1965 Squareback, new eng. & tires, AM-FM radio, $850. 213-375-9527.

Ford, 1954 cpe., auto. trans., $75. 213-324-2690.

Lincoln, 1964 Continental, full power & air, AM-FM, $645. 213-377-2552.

Corvair, 1963 Monza, auto. trans., radio, eng. o/hauled, $225. 213-869-1806.

Chevrolet, 1972 Nova, V-8, p/s, p/b, $2,500. 213-645-0685.

Porsche, 1960, 356 B/1600, reblt. eng., AM-FM, $1,700. 213-376-6489.

Opel Wagon, 1970 Super, 27,000 act. mi., $1,500. 213-370-9124.

Saab, 1968, 3-cyl., 2 cy., 2-dr., $550. 714-526-5358.

Pickup, Chevrolet, V-8, 283 cc, 60,000 mi., full cabover camper, w/jacks, 3-way refrig., $700 ea. or both for $1,300. 213-326-9258.

Porsche, 1963 S-90, reblt. eng. & trans., h/top & soft tops, $2,500. 213-672-6134.

Pickup, 1964 mod. C1100 International, w/ 10′ camper, hvy. duty equipt., $1,295. 213-329-8393.

Model A Ford, 1931, restored, $1,800. 213-835-7669.

Pontiac, 1965 Tempest convt., V-8, $500. 805-498-8550.

Station Wagon, 1971 Volkswagen 411, auto. trans., 85 h.p., $2,800. 714-774-9183.

Cadillac, 1967 Coupe DeVille, fully equipt., $2,000. 714-968-1470.

Opel, 1969 Kadette sport cpe., auto. trans., 102 h.p. eng., $1,175. 213-248-9274.

Camaro, 1968 Z-28 pkg., p/s, pwr. d/brakes, 4-spd., $2,000. 213-645-7715.

Fiat, 1970 850 Spider convt., 12,000 mi., $1,550. 213-375-5332.

Rambler, 1962 L head, auto., $95. 213-831-9545.

Mercedes, 1970 MBZ, 280 sedan, p/s, auto. trans., a/c, p/w, $6,400. 714-871-7625.

Plymouth, 1971 Roadrunner, custom blt., Mag. whls., stereo, 4-spd. stick, 383 cu. ft. d/brakes, $3,000. 213-670-3820.

Volkswagen, 1966, r/h, $550. 213-670-3902.

Chevrolet, 1964 Nova, 2-dr., auto., $575. 213-676-4464.

Dune Buggy, VW, fiberglass, street legal, never run, $400. 213-324-3654.

Triumph, 1968 GT 6, wire whls., o/drive, AM-FM radio, $1,200. 213-545-4038.

Jeep, 1949 Willys CJ3A, new top, batt., carb., $800. 213-371-2392.

Datsun, 1970, 510 sedan, 2-dr., 4-spd., AM-FM radio, $1,400. 213-676-0392.

Rambler, 1964 American, auto., $450. 213-644-7088.

Chevelle, 1971 Malibu, p/s, p/b, a/c, 20,000 mi., $2,900. 213-376-5753.

Mercury, 1971 Marq. 4-dr. h/top, fact. air, many extras, $4,200. 714-544-2261.

Miscellaneous For Sale

Cartop Carrier, canvas, fits VW, $5. 213-328-3306.

Car Topper, Helite, makes tent & bed, canvas, $250. 714-544-2285.

Houseboat, 12 x 34, on Lake Mead, bltins, f/place, self-contained, sleeps 6, many extras, $6,000. 213-634-5978.

Table Lamp, Early American, made from old wine jug, $25. 213-325-5245.

Lot, Lake Havasu, R-1, lake view, $4,875. 213-377-9842.

Refrigerator, Westinghouse, 3 yrs. old, 18 cu. ft., frost free, copper, $200. 213-454-2675.

Aircraft Engine, Allison V12-1710, n.t.s.o., $500. 213-371-2531.

Miscellaneous For Sale

Motorcycle, 1966 Honda Super Hawk, 32 h.p., 338 cc, $275. 213-547-4141.

Water Bed w/frame, queen size, $25. 213-370-9037.

Camera, 35 mm, Canon IV-S2 w/50 mm f 1.8 lens & 135 mm f 3.5 lens, case & Universal viewer w/case, $110. 714-842-2649.

Ham Station, Galaxy V transceiver, remote VFO, spkr. console, extras, $225. 213-860-3793.

Strobe, Honeywell, 65-D, $30. 213-320-8845.

Trunk, old, $10. 213-672-1090.

Trailer Hitch, 550 lb. Tru-Pivot equalizer w/sway control, $35. 714-839-6959.

Play Set, child's, $20. 213-321-2674.

Pup, afghan, male, 14 mos. old, champ. sired, $200. 213-679-8307.

Engine, 327 Jeep, American Motors V-8, 40,000 mi., complete, $200. 213-671-3512.

Bedroom Set, king-sized, walnut, box springs & mattress, $275. 213-370-6348, 213-325-0788.

Dryer, elec., G.E., white, $75. 714-637-7662.

Used Brick, 10¢ ea. 213-376-4831.

Pool Table, slate, access., $450. 213-675-5449.

Panels, fiberglass, neutral, 424 sq. ft., $20. 213-833-6045.

Stove, Kenmore elec., $25. 213-370-6400.

Telescope, 3¼″ reflector, ½″ eyepiece, adjust. Barlow lens, $35. 213-645-4697.

Motorcycle, 1970 Triumph 650, 3,800 mi., $900. 213-329-0086.

Cassette, car stereo player, recorder, 8 tapes, 2 spkrs., $85. 213-672-1693.

TV Set, black & white, table model, $15. 213-377-4623.

Sofa, 8′, blue, $75. 213-377-8255.

Surfboard, 8′ Jacks, w/car rack, used twice, $75. 714-879-2569.

Picnic Table, redwood, benches, umbrella, w/stand, $20. 213-671-1617.

Wonder Horse, adjust., $8. 213-379-1873.

Snow Tires, 2 G70-14″, Gates Commando Special, $60. 213-672-8462.

Dinnerware, Havaland Paradise design, 8-pc. setting, many extras, $400. 213-831-9589.

Drafting Machine, Post, True Line, 24″, $60. Box 701.

Travel Trailer, 1971, 22′ Roadliner, fully self-contained, 12,000 B.T.U. roof-air, Honda rack, $3,300. 213-542-4624, 213-370-5020.

Pups, Weimaraner, 6 wks. old, male & female, $10 ea. 213-455-2369.

Movie Outfit, Bell & Howell, 8 mm, $75. 213-679-6982.

Typewriter, elec., Royal Empress, $125. 213-371-0645.

Climber, children's, $10. 213-675-8813.

Surfboard, 7′ Rick, $20. 213-374-8608.

Motorcycle, 1969 Yamaha, ATI-MX, 125 cc, gear box o/hauled, $300. 213-679-4863.

China Cabinet, Drexel, mahogany, 4′ x 6′, curved glass front, $250. 213-923-9957.

Umbrella Tent, w/side rm. & pole, w/2 cots, $49. 213-324-9491.

Carnival Game, fishing pond, 6-pl., $125, other games. 213-861-6404.

Boat, fiberglass, & trailer, elec. gears, 1961 mod., $100. 213-671-7127.

Oven, Radarange, Amana, 2 mos. old, $300. 213-675-7938.

Outboard Motor, Evinrude, 9½ h.p., never used, $450. 213-457-9600.

Record Player, stereo, auto. w/cover, McDonald, $35. 213-327-4267.

Refrigerator, Westinghouse, white, 13 cu. ft., $50. 213-679-5212.

Rocker, swivel-type, black naugahyde, $25. 213-675-1000.

Dining Table, maple, 6 chairs, $100. 213-375-9553.

Divan, $75, other items. 213-375-1756.

Tires, 4 Firestone, whitewall, E-70-14 wide ovals, $80. 213-675-2514.

Camper Shell, Gem top, fits 1965, '66, '67 El Camino, $150. 213-377-3552.

Sofa, 6′, matching chair, curved Lawson style, $65. 213-670-2564.

Exercise Bike, $22. 213-326-5731.

Counter Top, Formica, 2′x11′, $10. 213-645-7972.

Sailboat, 14′ Super Satellite, trailer, boat cover, many extras, will furn. hitch, $800. 213-392-1447.

Airplane, 1948 Stinson 108-3 station wagon, hvy. case Franklin 165, 500 smoh, gyro panel, Mark II & Alpha 200, $4,000. 805-947-1026.

Miscellaneous For Sale

Washer, Maytag, & dryer, yellow, $300. 213-377-7065.

Davenport, colonial, spice tweed, $65. 213-326-3135.

Cocktail Table, 2 end tables, glass tops, $125. 213-644-3922.

Orchid Collection, w/greenhouse, 8x10, $75. 213-842-1405.

Motorcycle Helmets, orange or yellow, med. size, $10 ea. 213-326-0895.

Bicycle, Stingray, $25. 213-325-1190.

Ski Boat, 16′ 70 h.p. Merc., lge. whl. trailer, $995. 213-323-3801.

Calculator, Curta Mk II portable, 15-digit accum./multiply reg., case, manual, $100. 805-495-7550.

Motorcycle, 1969 Bultaco, 250 cc, Pursang Mx, $450. 213-769-7513.

House, 2-bdrm. & small rm., lge. lot, $24,000. 213-374-2076.

Mobile Home, 2-bdrm., awning, stor. shed, 10′x55′, in Gardena, $3,995 furn., $3,495 unfurn. 213-532-7652.

House, 2,500 sq. ft., 4-bdrm., 3 bath, lge. living-dining rm., f/place, fully landscaped yd., Mesa P.V., $64,500. 213-377-2881.

House, 3 bdrm., 1¾ baths, central a/c, 27′x12′ alum. covered patio, many extras, $32,950. 714-521-0206.

House, in Hollypark-Gardena, 3-bdrm., 2 baths, bltins, attach. 2-car gar., covered patio, $28,500. 213-323-8213.

Acreage, 2½ acres, 2 mi. from Crystalaire Country Club Ests., near Pearblossom Hwy., $11,500. 213-430-1952.

Lot, improved, Big Bear Pines, $750 dn., 7½% on bal., $1,995. 213-325-5609.

Mobile Home, 10x50 2-bdrm., cpts., patio cover, stor. shed, in four-star park, $3,000. 213-925-1934.

House, 2 yrs. old, 2-story, 4-bdrm., 2 baths, f/place, bltins, cpts., dps., Cerritos, $32,500. 213-860-3022.

Wanted to Buy

Power Edger, not over $25. 213-679-0888.

Bricks, new or used, need approx. 650. 213-675-6206.

Motorcycle, any make or model, reasonable. 213-532-6687.

Free (To Be Given Away)

Dog, 1 yr. old, shots, brown & white female, house broken. 213-756-1812.

Kittens. 213-644-2840, 213-376-9054.

Dirt. 213-379-3153.

Rentals Offered

Cabin, 2-story, Big Bear Lake, sleeps 12, f/place, all-elec., boat dock, $125 wk. 714-893-0410.

Camper-Pickup, 1971 Ford, sleeps 6, $100 wk. & 5¢ mi. 714-544-0730.

Cabin, Big Bear Lake, Moonridge, 3-bdrm., 2 baths, kit., utens., f/place, family only, $125 wk., $50 wk/end. 213-326-7232.

Cottage, Ocean Bch., San Diego, near Mission Bay, $80 wk. 714-826-2007.

Vacation Home, Bass Lake, $150 wk. 213-374-3702.

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, $140 wk., $65 wk/end. 213-377-3817.

Mountain Home, Big Bear City, 2-bdrm., bath, f/place, furn. incl. linens, $35 wk/end, $100 wk. 213-823-1788.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40 wk/end, $70-$90 wk. 213-868-8040.

House, on 5 acres, Big Bear Lake, 2-bdrm., f/place, furn., all utils., sleeps 8, $100 wk., $45 wk/end. 213-325-8267.

Cabin, Lake Arrowhead, family only, $125 wk., $55 wk/end. 213-831-1745.

Rentals Offered

Apt., 2-bdrm., unfurn., bltins, cpts., dps., $145. 213-426-4060.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

Cabin, near Arrowhead & Running Springs, sleeps 4 or 5, $35 wk/end, $95 wk. 213-370-7105.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, $125 1 wk., $200 2 wks. 213-375-2255.

Motor Home, 1971 Pace Arrow, 20′, sleeps 6, a/c, self-contained, ins., $150 wk., $50 wk/end. 714-846-1858.

Apt., 1-bdrm., unfurn., in Redondo Bch., cpts., dps., bltins, gar., 1 mo. free rent, $150. 213-831-0453.

Apt., 1-bdrm., cpts., dps., range, oven, close to Northrop, unfurn., $130 mo. 213-325-5705.

Cabin, Big Bear, on golf course, sleeps 12, $40 wk/end, $100 wk. 714-595-3968.

Condominium, Palm Springs area, furn., 2-bdrm., pool, $100 wk., $60 wk/end. 213-327-8994.

Duplex, unfurn., upper, 2-bdrm., walk to Northrop, $155 mo. 213-676-1985.

Cabin, Big Bear City, 2-bdrm., 1-bath, 3 yrs. old, $40 wk/end. 213-320-6486.

House, 2-bdrm., guest rm. in rear, lge. fenced yd., dble. gar., bltin stove & refrig., f/place, close to Aircraft Div., $250. 213-676-6390.

Studio Apt., 2-bdrm., 2-bath, sub. gar., adults, $225 mo. 213-670-6084.

Rentals Wanted

Concrete Mixer, small, for 2 mos. 213-375-1685.

House, 3-bdrm., fenced yd. & gar., must be close to El Segundo or Santa Monica high schools, will lease. 213-823-7701.

Child Care

Child Care offered, my home, El Camino College area. 213-676-6502.

Personals

Thank you for your thoughtfulness & kind expressions of sympathy at a time when it was deeply appreciated. BERL PIERCE & HELLEN TOTH.

Thanks to everyone at Northrop & NRC for the cards, calls & visits during my recent eye surgery. J. R. MELTON.

To all my friends at Northrop thank you sincerely for the cards, flowers & condolences during the illness & demise of my brother, Vernon. W. H. BUSTER.

Ride Wanted, 8 a.m.-4:42 p.m., from Ravenspur Dr., Palos Verdes, to Plant III, Aircraft ext. 2175.

To my many friends at Mariposa, my sincere appreciation for the floral tribute & the many kind words of sympathy at the recent death of my mother. DICK TEUBERT FAMILY

Wish to join ride pool, 8 a.m.-4:42 p.m. or 8:15 a.m.-5 p.m., East Anaheim to Hawthorne, Corporate Lab Bldg., NCL ext. 4591, 714-630-1629.

Ride Wanted/offered, 8 a.m. - 4:42 p.m., Santa Ana-Orange-Tustin area to Hawthorne, Aircraft ext. 4681, 714-544-2261.

I want to thank the people of Dept. 3436, for the floral tribute & expressions of sympathy at the time of my mother's death. MELVIN M. COOK

For Sale or Trade

Plymouth, 1948 cpe., w/289 Ford V-8, auto. trans., $325 or trade for Jeep station wagon, VW bus, or pre-war sedan. 213-374-5878.

Cabin Cruiser, 28′ Trojan, near new eng., small dn. & assume $70 mo. pymt., $5,300 or trade equity. 213-768-6244.

Golf Club, set, $75 or trade for 10-spd. bicycle. 213-821-5516.

Stove, Sears Kenmore elec., self-cleaning, 1969, $60 or trade for gas stove. 213-770-0081.

NORTHROP NEWS

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Managing Editor ..... **Rosemary Hussey**
Editor—Electro-Mechanical Division ..... **Ivy Edmonds**
Correspondent—Ventura Division ..... **Marian Robinson**
Correspondent—Architectural Systems ..... **Dale Albee**
Correspondent—Precision Products Department ..... **Peter Goodall**

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STUDENTS, seated, left to right, Judith Adams, P. M. Meyer, Pamela Horton. Standing, left to right, R. L. Adams, H. L. Janssen, director, Industrial Relations, and R. C. Keller. The other students were unavailable for photographs.

Nine Complete Studies Under Educational Plan

Nine Electronics Division personnel have completed studies under the Northrop Educational Refund program.

Receiving diplomas at graduation ceremonies of the University of Southern California: Ronald L. Adams, project group controller, master of science in systems management; Pamela M. Horton, project group controller, bachelor of arts in speech and communication; Robert C. Keller, chief, Security, Safety and Plant Protection, bachelor of science in business administration; George W. Little, engineering staff assistant, Division Forward Planning, bachelor of science in business administration; Craig D. MacConnell, Industrial Relations representative, sr., master's degree in business administration; Paul M. Meyer, engineer, master of science in electrical engineering; and, Robert E. Peterson, computer programmer, bachelor of science degree in electrical engineering.

Judith K. Adams, secretary, Manufacturing Engineering, received an associate of arts degree in English from El Camino College, and Oscar Bates, Jr., senior development and test technician, was awarded an associate of arts degree in business from Cerritos College.

FIELD SHELTER

(Continued from page 1)

quired to perform specific field tasks."

This latest contract is an outgrowth of a Harrier avionics maintenance van study performed by Northrop Electronics for Naval Air Systems Command approximately two years ago, and a systems analysis and design study for the USMC Development and Education Command, performed in 1971.

Toastmaster Club 212 Installs Officers At Its Annual Awards Banquet

Northrop Toastmasters Club 212 installed officers for the coming year at the annual installation and awards banquet July 8.

Assuming their new posts were: Randolph Andrews, Aircraft Division, president; Vern Beckner, Aircraft, educational vice president; Earle Miller, Electronics Division, administrative vice president; Carl Che, Aircraft, secretary; Paul Chey, Electronics, treasurer; and Marty Miller, Aircraft, sergeant-at-arms.

Awards presented included Toastmaster of the Term, Randolph Andrews; Most Improved, Carl Che; Most Outstanding, Randolph Andrews; Most Dedicated, Earle Miller.

GRABOFF TALKS TO ANAHEIM CHIEFS

Roy Graboff, Electronics Division Accounting group chief, addressed Anaheim city department heads recently on "Aerospace Cost Control and Financial Management."

Attendees included the city manager and heads of the Fire, Police, Parks and Recreation, Zoning, Engineering, Fiscal and Public Works departments.

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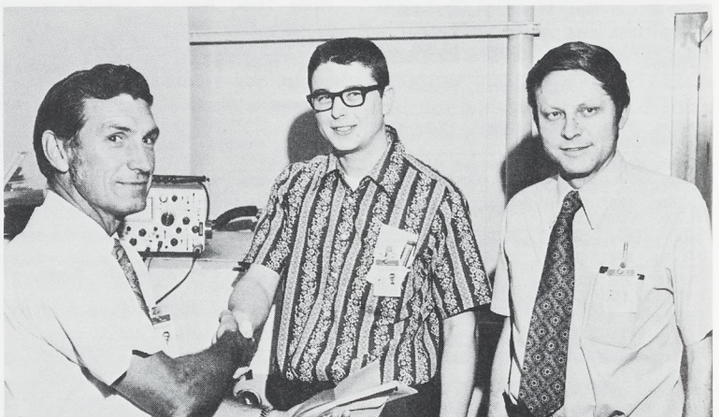
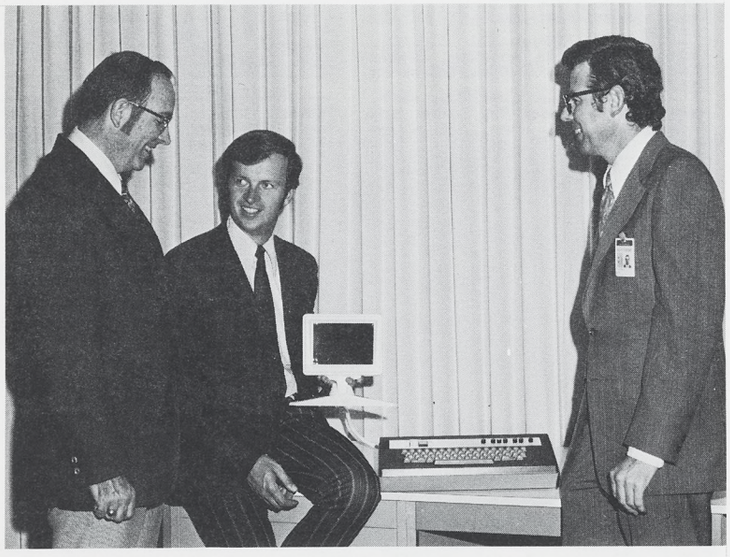


ROBERT BONE, center, Digital Systems Test unit, receives a Northrop Suggestion Awards Program check for $138 from Norm Henry, chief, Quality Assurance and Test group, as his supervisor, C. G. Morgan, watches. Mr. Bone suggested a new tool for checking operational amplifiers. A check for $46 was awarded to A. L. Gibbens, Fabrication, for his suggestion for a new tool for printed circuit board slot center line location.



AL JOHNSON, left, GTE Sylvania, discusses the capabilities of the Northrop DIGISPLAY with Les Jeffries, center, co-inventor of the unit, and Walt Goede, DIGISPLAY program manager. Mr. Johnson was principal speaker at a joint Northrop-GTE Sylvania product introduction and marketing study meeting held recently at Palos Verdes.

SERVICE AWARD RECIPIENTS FOR JULY

Two division employees were eligible for 25-year service awards this month.

They are Neale Ebright, an engineering specialist with the Operational Readiness group on the JIFDATS program at Palos Verdes and Joe Kalina, who is on medical leave.

Recipients of 20, 15, 10 and five-year service awards were:

Palos Verdes

Twenty years: J. E. Berry, Charles Anthony, Jeannie Jappe, Stanley Ecklund and Carmela Incao.

Ten years: Roy Graboff, Laurence Toops, Robert Butcher, Setsuo Horita and Joan Jones.

Five years: Emily Felder.

Hawthorne

Twenty years: Martha Morales, H.W. Sherwood, Fred Etcheverry, Wallace Pfeil and Dorothy Muzik.

Fifteen years: John Noble and Otha Stubblefield.

Ten years: Nils Johnson, John Roehrig and William McCown.

Five years: Jack Hunden and Marie Hecker.

Thomas Pilcher of Massachusetts received a five-year award and Jasper Randazzo of the Ohio office received a 10-year award.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

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BOB SANDERS, left, displays photograph of U.S. Navy attack submarine for Al Eldridge.

Omega—In The Air And Under The Sea

BRN-7 Omega For Navy Subs

Al Eldridge, program manager, has announced the award of a $6.4 million contract by the Navy to the Electronics Division for production of the BRN-7 Omega navigation system for attack submarine use.

The BRN-7 is similar to the ARN-99(V)2 airborne Omega in that it uses the NDC-1070 computer, with software modifications for attack submarine application.

According to Mr. Eldridge, Omega operated 9,000 hours with just one failure during operational evaluation, and the Navy is expected to use the unit extensively in the attack submarine fleet.

Basic manufacturing including circuit board assembly is scheduled for Northrop Dakota, with final assembly and test at Hawthorne.

Bob Sanders is project engineer for the BRN-7 program.

U.S. Navy C9B Uses ARN-99(V)2

The Electronics Division has been awarded its first contract for production of the ARN-99-(V)2 computerized Omega, according to F. W. Woods, manager, Omega Programs.

The ARN-99(V)2, which uses the Northrop NDC-1070 computer to allow "hands-off" navigation of the vehicle in which it is installed, was selected by McDonnell Douglas Corporation for their C9B specially equipped, long-range version of the DC-9 convertible passenger-cargo aircraft to be used by the Navy as its fleet logistic support transport.

Deliveries of the newly designed Omega systems are scheduled to begin in January 1973, to the Douglas Aircraft Company division in Long Beach, where the C9B is to be produced.

Mr. Woods said, "The ARN-99 has been extensively tested on a wide variety of vehicles. With over 5,000 operational hours behind it, the ARN-99 has been tested more than any comparable system, demonstrating accuracies of less than one nautical mile absolute in the normal mode of operation, and less than 1,000 feet in the differential mode."

PICNIC SET

Employees are reminded to return their reservations to Ed Sterbenz, Orgn. 5447, Zone A60, so plans can be finalized for the upcoming picnic on August 27.

Northrop Safety Program Matches New Health Act

Making the new Federal Occupational Safety and Health Act (OSHA) succeed is everybody's business, according to George Chalmers, chairman, Management Safety Council.

"While Northrop has always had a progressive and effective occupational safety and health program, OSHA now requires all companies to provide safe and healthful working conditions for their employees," Mr. Chalmers said.

"However, the safest possible working conditions may become ineffective unless each employee rigidly observes prescribed safety rules and operating guidelines for his work environment," he added.

The Management Safety Council held its first formal

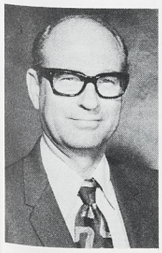
(See OSHA, page 6)

SERVICE AWARDS

Ralph Brant, supervisor, Manufacturing, and Frank McGinley, carpenter, in Maintenance, received their 30-year service awards recently. Both employees work at the Hawthorne facility.

Three employees were eligible for 20-year service awards this month. They were Roy Jackson and R. J. Petrini from Palos Verdes and Marvin Weber from Hawthorne.

Ten-year service awards were received by Joyce Oaks, Roger Horn and Fern Dillard from Hawthorne. From Palos Verdes there were James Penrod, R. B. Corbus, Joseph Perkins, Bror Dahlberg and Ned Hazlett.



Mr. Brant

Mr. McGinley

Division Club To Schedule Meeting

Reservations are still open for the Electronics Division Management Club meeting, August 23, according to Gary Lewis, vice president.

Dr. N. Nyetski, former Russian space scientist and chairman of a visiting Soviet cultural delegation will address the group on "Two Societies in Comparison."

The club meets at Lococo's Restaurant, 612 Sepulveda, Manhattan Beach. Social hour is at 5:30, dinner at 6:30 and the meeting at 7:30.

V. R. MOORE, Omega Program office, F. R. Woods, manager, Omega Programs and Jim Mihos, contract administrator, discuss the new ARN-99(V)2 Omega contract requirements.

JACK BAILHE, NORTHROP REPRESENTATIVE in Thailand, left, and Glenn R. Lord, president of Northrop Airport Development Corp., center, meet with Niam Tong Dow, permanent under-secretary of Singapore's Ministry of Communications, during the signing of a $30 million major upgrading project for Singapore International Airport.

NADC to Design Upgrading For Airport in Singapore

Northrop Airport Development Corp. has been awarded a $1.2 million contract to plan and design the $30 million major upgrading of Singapore International Airport.

Mr. Yong Nyuk Lin, the government's minister for Communications said in Singapore that NADC was selected after a competition in which 10 of the world's leading airport consulting firms were invited to submit proposals.

The contract covers the immediate phase development of the airport. NADC will update and refine the existing master plan, and prepare detail designs and specifications for new passenger terminal, new cargo terminal, new fire station and a hangar for jumbo jets, as well as associated ramp areas.

NADC, with headquarters in Washington, D.C., has been involved during the past year in various types of airport planning, design and feasibility studies at numerous locations, including St. Louis, Bangkok, Tehran, Taipei, Djakarta and two sites in the U.S. Trust Territories of Micronesia.

NADC was selected last month by Thailand's National Executive Council to negotiate a contract for the development of a new international airport in Bangkok. It is estimated that the first phase of this new international airport will be completed in five years and will cost approximately $100 million.

Glenn R. Lord, president of NADC, said the award of prime management responsibility for the Singapore Airport to Northrop Airport Development Corp., after a worldwide competition, was added recognition of the company's ability to apply proven systems analysis techniques to this field.

San Diego Office Has Anniversary

Northrop's Ocean Engineering office in San Diego celebrated its first birthday July 13. The office was established in July 1971, under the management of W. B. Buckbee, to support Northrop Services Inc.'s Deep Submergence Systems support of the U.S. Navy in San Diego.

The Ocean Engineering office supports the Navy in two major programs. One is the Deep Submergence Rescue Vehicle which the Navy is building for submarine rescue work at depths up to 5,000 feet. The second major program is the Deep Dive System, Mark 2 which is concerned with developing techniques and equipment for saturation diving.

Members of the Ocean Engineering office, in addition to Manager Buckbee, are: Dolly Atherton, secretary; W. B. Bennett, C. P. Buckley, J. Drucker, R. F. Flynn, Daphne Hospins, T. S. Lee, J. C. Lillywhite, C. B. Linton, R. Quinn, E. A. Smith, J. A. Vaughn, R. K. Viertel, L. M. Wearda, R. R. Wimmermark and D. R. Paradise.

Northrop Export Potential Praised by Aviation Week

Aviation Week Magazine, in an editorial on the problems of declining aerospace exports, praised Northrop's programs aimed at high export potential.

The magazine pointed out that aerospace sales had been one of the principal elements in maintaining a positive U.S. balance of trade during the past decade.

"This year," Editor Robert Hotz wrote, "aerospace exports will begin a drastic decline that cannot be arrested or reversed without a drastically revised government policy . . . Only new and effective policies quickly forthcoming will allow the inherent strength of U.S. high technology to be decisively felt in the international marketplace . . ."

As an example of what must be done to reverse the declining trend, Mr. Hotz said, "We must provide more preceptive vision and more effective support in early research and development phases aimed at products or product variants with high export potential. The Northrop F-5 and P-530 programs are excellent examples of what can be accomplished in this area."

Foreign sales of Northrop's new F-5E International Fighter are expected to have more than a $1.5 billion impact on the U.S. balance of trade over the life of the contract, Northrop President Thomas V. Jones reported when the F-5E Tiger II was rolled out in June.

Olson Will Make Puerto Rico Study

A noise contour study to determine the effects of airport noise pollution on a proposed hotel site in San Juan Puerto Rico will be made by Olson Laboratories' Acoustical Engineering Department, according to Gordon Bricken, manager of the department.

The contract, with PFZ Properties, will relate to Vacia Telega, a 3,000-acre development to replace the present San Juan hotel district. The contour study will show the impact and density of noise pollution from San Juan International Airport as it affects the proposed development area.

ORDERS BACKLOG RISES

Northrop Reports Earnings

For the six months ended June 30, 1972, Northrop Corporation reported net income of $5,081,000 compared with $6,557,000 for a comparable six month period of 1971. The earnings were equivalent to $1.13 per primary share compared to $1.38 for the comparable period of last year. On a fully diluted basis, the earnings were $1 per share compared with $1.18 last year. Northrop changed from a fiscal to a calendar year basis in 1972.

The company's current order backlog is approximately $734 million versus $490 million at a comparable point in 1971.

Six months net sales for the aircraft, communications, electronics, and construction firm amounted to $267,626,000 compared with $282,208,000 for the first half of last year.

Net earnings for the three months ended June 30, 1972 were $2,728,000 compared with $3,852,000 for the same period last year, and $2,353,000 for the previous quarter of 1972. This was equivalent to 61 cents per primary share against 82 cents in the second quarter of last year and 52 cents in the first quarter of 1972.

Fully diluted earnings were 54 cents per share against 69 cents a year ago, and 46 cents in the first quarter of 1972.

Net sales for the second quarter totalled $154,320,000 compared with $138,570,000 last year, and $113,306,000 for the first quarter of 1972.

"We believe the substantial increase in order backlog is an indication that the company's overall business prospects are on a substantial upturn," Thomas V. Jones, Northrop president said. "The indications are that the increase in earnings from 52 cents per share in the first quarter to 61 cents per share in the second quarter represents the beginning of a new trend," Mr. Jones said.

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Microminiaturization Packs Circuits Into Small Wafers

Dr. Klaus Schuegraf, the lead scientist in the Microelectronics Laboratory at the Northrop Corporate Laboratories, pointed to a thin disc of silicon measuring 1½ inches in diameter.

"That single piece of silicon," he stated, "contains 500 identical integrated electronic circuits and each complete circuit is comprised of a large number of transistors, diodes, capacitors and resistors. Before the advent of microminiaturization, we would have needed a storage space as large as a four-drawer filing cabinet to hold the vacuum tubes and wiring needed to construct just one of these microcircuits."

The large-scale integrated circuits (LSI) described by Dr. Schuegraf are frequency synthesizers which are being fabricated as laboratory test devices to determine feasibility of advanced communication concepts developed by other scientists in the Information Sciences Laboratory.

One of Many

The frequency synthesizer is but one of many LSI circuits being designed and fabricated in the Microelectronics Laboratory. Other projects include prototype development of circuitry for the Mark III Voice Warning System and development of a quartz accelerometer. Both are products being manufactured by the Electronics Division.

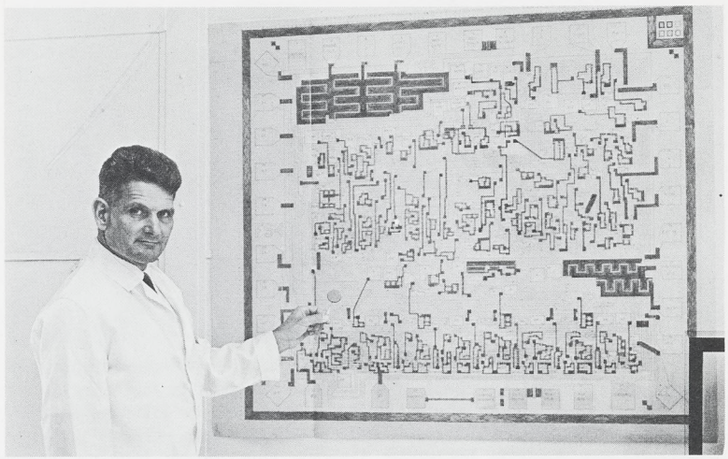
Microminiaturization allows the design of electronic systems to develop more sophisticated, versatile and reliable equipment than was possible a few years ago while reducing volume, weight, power and cost at the same time.

Electronic equipment presently designed with LSI circuitry would have been too bulky to carry in a plane and too expensive and unreliable to build using vacuum tubes or discrete solid state components.

The final product, the LSI circuit, is so small that it must be viewed through a microscope during wiring and testing. However, these circuits begin as large layouts drawn by design engineers or by computer aided technique. These layout drawings are then photographed and reduced to 1/100 of the original size. This photo-reduced "mask" is then rephotographed through a high resolution microscope lens and reduced another 10 times, to arrive at the final mask which is about the size of a pinhead. This small mask is then "step and repeated" (exposed, moved, exposed) over another photographic plate which is the same size as the silicon wafer. Then this mask which represents one LSI circuit is used to make a final mask which has 500 of these same circuits. It is this technique which enables the laboratory to make 500 identical LSI circuits on one silicon wafer.

To fabricate an LSI wafer, four to five different masks are needed. Each mask must be overlapped with the other with exacting precision and then photographically printed on the silicon wafer. With 500 identical circuits and 1,000 to 2,000 components in each circuit, the final 1½ inch silicon disc will contain about one-half million electronic components.

Silicon is used as the material to make microcircuits because it is a semiconductor (not a good conductor—not a good insulator) which can be changed into a conductor of electrons by adding small amounts of impurity atoms at the places you want conduction to occur. The impurities are generally boron or phosphorous atoms depending on the transistor you want to make. The impurities are diffused into the silicon in a high temperature furnace. Each impurity spot becomes a transistor on a diode and they are connected together to form a circuit by evaporating thin lines of aluminum between the components.



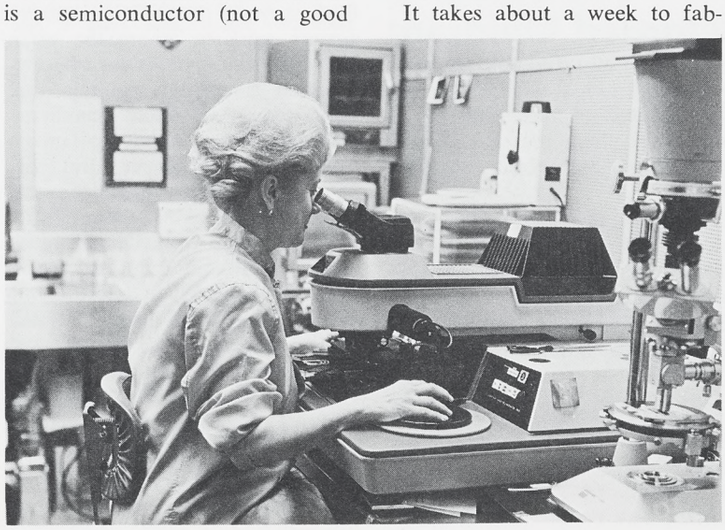
DR. SCHUEGRAF shows layout drawing which will be reduced to 1/100th of actual size.

Testing

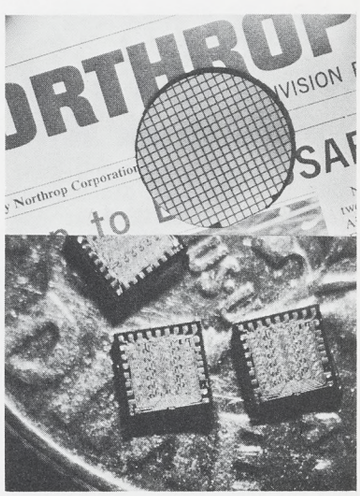
After the circuits are made, they are tested. All 500 will not be good circuits. The good ones are cut out of the wafer and placed in individual packages or cans. The lead wires and packages are often many times larger than the circuit they serve. Aluminum lead wires are bonded to the microcircuits using ultrasonic waves.

It takes about a week to fabricate a single wafer, after the work of making the masks has been completed. This may seem like a long time, but, it would take a single electronic technician working eight hours a day without breaks or holidays more than 11 years to do the same job. This figure assumes that it would only take him one minute to wire each of the one million components which are fabricated on the 1½ inch piece of silicon.

The Microelectronics Lab is continually reviewing ideas for new LSI circuitry which might have a significant impact on the sales of Northrop electronic systems. Further information can be obtained regarding the capabilities of the laboratory by contacting Dr. Schuegraf and Dr. Robert Malm, director of the Information Sciences Laboratory at the Northrop Corporate Laboratories.



ERNA DILLARD, processing technician, uses microscope to assemble minute parts of the integrated circuit.



THE TINY size of the wafer is shown in comparison to a page of the Northrop News, top. Below, "chips" representing a single square each in the wafer above rest on the edge of a dime to show the minute size of the finished integrated circuit.

Massey Retires; Merrell Moves to Northrop Pacific

Loyal Massey, plant manager, Northrop Pacific, Inc., has retired after 30 years with Northrop. He will be succeeded by Frank Merrell, former manager, Industrial Engineering at the Electro-Mechanical Division.

Northrop Pacific, located in Long Beach, California, builds aircraft flooring and stringer clips for commercial aircraft, including the Boeing 747 and 707, and is also involved in the new Northrop F-5E Tiger II program.

The company was founded as a Northrop subsidiary in 1967 and has been guided since its founding by Mr. Massey. His successor, Mr. Merrell, is a 17-year Northrop veteran.

EIGHT GRADUATES of the first High School Involvement Program (HIP) are returning to school after working full-time at Northrop during the summer. Shown above, during a discussion of HIP are Ralph Carey, instructor coordinator; Linda Garrett, Dana Grant, Karen Thomas, Ray Nadeau, instructor; Dwayne Day, Jackie Johnson, and Lourdes Medeles.

POSES SECURITY PROBLEM

Airlines' Baggage Search

As a result of recent hijackings, several airlines are not permitting hand-carried baggage, briefcases, or packages on their flights; or they are requiring a complete search of all items, including the opening of any packages. This must be considered when the hand-carrying of classified material is anticipated, since such packages may not be opened nor their contents be disclosed to unauthorized persons.

Additionally, such material must remain in the individual's personal custody at all times and cannot be "checked" separately or inside their baggage.

To avoid inconvenience or costly delays in such instances, it is suggested that, if at all possible, required classified documents or hardware be mailed in advance of your trip.

If this is not feasible, contact the airline with which you intend to travel, determine their current policy, and if necessary, make special arrangements with the reservations supervisor.

Holiday Coming

Another long holiday weekend is in store for Northrop employees when Labor Day, Monday, September 4, will be observed as one of the company's paid holidays.

The next scheduled holiday will be Thanksgiving Day, which will be observed this year on Thursday, November 23. It will be followed by the traditional long Northrop Christmas holiday.

Who's Who in West Honors Leibert For His Work With Retarded Children

Peter Leibert, manager, Machinery Performance Monitoring, Electro-Mechanical Division, has been included in the 1972-73 edition of Who's Who in the West, an exclusive listing of outstanding professional people in the western section of the United States.

Mr. Leibert was included in the listing because of his work with the California Association for the Retarded. He has been working with the association for 12 years, and was recently elected first vice president.

The association is a major sponsor and supporter of planning, legislation and public actions that permit a closer approach to normalization for the retarded of all ages. This principle of normalization approaches the development of the retarded by integrating them into the normal educational and social environment.

This practice is fast replacing older methods in which the retarded were treated as unusual or special cases and were isolated from the adaptive, motivational and learning influences of normal society.

In his new office, Mr. Leibert will be a principal leader in the association's legislative and public information programs for extending and maintaining the principle of normalization throughout the state.

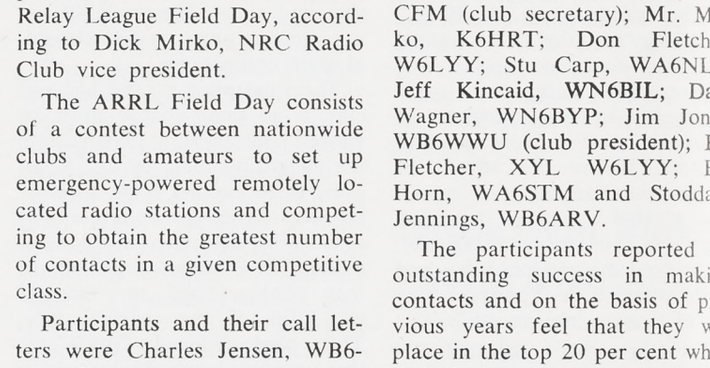
Northrop Hams Take Part In Relay League Field Day

Radio hams from the Aircraft and Electronics Divisions took part in the 1972 Amateur Radio Relay League Field Day, according to Dick Mirko, NRC Radio Club vice president.

The ARRL Field Day consists of a contest between nationwide clubs and amateurs to set up emergency-powered remotely located radio stations and competing to obtain the greatest number of contacts in a given competitive class.

Participants and their call letters were Charles Jensen, WB6BZJ (field day chairman); Gerry Roberts, K6YPT; Doug Marston, WB6JCD; Don Moore, WA6BJJ; Spud Monahan, K6KH (station custodian); Bob Cobb, W6CFM (club secretary); Mr. Mirko, K6HRT; Don Fletcher, W6LYY; Stu Carp, WA6NLQ; Jeff Kincaid, WN6BIL; Dave Wagner, WN6BYP; Jim Jones, WB6WWU (club president); Pat Fletcher, XYL W6LYY; Bill Horn, WA6STM and Stoddard Jennings, WB6ARV.

The participants reported an outstanding success in making contacts and on the basis of previous years feel that they will place in the top 20 per cent when the final point scores are announced in about three months.



HAMS WHO joined in the ARRL's field day are, front, from left, Dick Mirko, Jeff Kincaid, Dave Wagner, Doug Marston, Jim Jones and Bill Horn. Back, from left, Pat Fletcher, Don Fletcher, Stu Carp, Bob Cobb, Don Moore, Charles Jensen and Gil Jones.

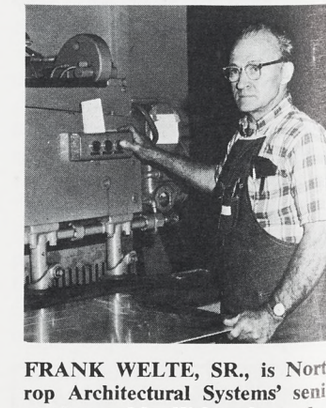
NRC Commissioners Have Their Day

"For three hundred and 64 days a year the NRC commissioners work to assure the various clubs under their jurisdiction function smoothly, maintain the participation of their members, and offer some activity of interest to every employee. But the 365th day is reserved as an evening of recreation for them."

These words from Don Kohler, Aircraft Division Industrial Relations representative, describe the annual dinner dance for NRC commissioners. This year it was held aboard the Princess Louise.

Marie Tully, NRC manager, Aircraft Division, said, "These dinner dances are one way of thanking the people who spend so much of their spare time for the club."

Aircraft and Electronics Division employees interested in working with NRC are invited to call ext. 2486 at Aircraft Division and ext. 425 at Electronics Division.



FRANK WELTE, SR., is Northrop Architectural Systems' senior employee. Mr. Welte, shown here operating a shear in the brake shop, recently marked his 32nd year as a machine operator with Northrop.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Cadillac, 1968, Fleetwood Brougham, stereo, Cruise Control, extras, $2,750. 213-547-3746.

Mercury, 1971, Marq. Brghm., 4-dr. h/top, fact. air, many extras, $4,200. 714-544-2261.

Volkswagen, 1970 Pop-top, tape, tent, extras, $2,850. 213-323-9586.

Chevy II, 1966, h/r, auto., $500. 213-598-3552.

Mustang, 1967, vinyl roof, h/top, auto., 289 4 bbl.,p/s, $850. 213-644-7613.

Pickup, Chev., 1966, ¾-ton, & 10′ o/head camper, fully equipped, $2,800. 213-675-3254.

Mustang, 1969, a/c, mag whls., extras, $1,500. 213-329-1861.

Station Wagon, 1967 Pontiac Tempest, V-8, auto., p/s, p/b, $1,000. 213-832-6394.

Chevrolet, 1969, Malibu, p/s, r/h, $1,700. 805-492-1155.

Dodge Van, 1972, Gypsy Conversion Camper, w/elec. refrig., $200 dn., $5,800 bal. 213-635-9944.

Buick, 1962, Special, convt., runs good needs new top & paint, $200. 213-375-5009.

Rambler, 1962, American, $95. 213-831-9545.

Chevrolet, 1962, 2-dr., 75,000 mi., stick, $275. 213-295-1750.

Pickup, 1962 Chev., ¾-ton, 283 eng., 3-spd., Lazy Daze camper, $1,500. 213-644-7040.

T-Bird, 1956, completely restored, $2,000. 213-756-1812.

Camper Van, 1970 VW, recent eng. overhaul, $2,200. 714-524-1376.

GMC Bus, rebit. diesel eng., auto. trans. $2,300. 213-370-3821.

Chevrolet, 1964 Impala, 4-dr. h/top, p/s, r/h, $500. 213-322-3319.

MGTF, 1954, rebit. eng., $1,900. 213-288-3432.

Chevrolet, 1969 Chevelle SS, auto., p/b, p/s, a/c, 2-dr., $2,150. 213-773-9680.

Volkswagen, 1966, r/h, $795. 213-377-5003.

Lotus Elan, 1967 coupe, $1,600. 213-376-9054.

Ford Pickup, 1956 ½ ton, a/c, extras, $1,100. 213-530-4709.

Volkswagen, 1968, camper, pop top & tent, $1,850. 213-869-2673.

Pontiac, 1970 Le Mans Sport, p/s, auto., radio, $2,800. 213-421-1300.

Model A pickup, $1,500. 213-323-5746.

Camaro, 1967, 37,000 mi., auto., radio, 6 cyl., 4-track tape, $900. 213-376-6806.

Station Wagon, 1967 Chevrolet Caprice, a/c, $1,000. 213-530-3046.

Cadillac, 1958 Coupe Deville, 77,000 mi., $900. 714-879-9736.

Ford, 1970 Torino, full pwr., take over $112 mo. pymts., $2,000 approx. bal. 805-259-1840, 213-361-7217.

Datsun, 1972 mod. 1200, 4-spd., console, r/h, $1,595. 714-962-5166.

Corvair, 1963 Spider, w/turbo charger, $225. 213-679-0888.

Chevrolet, 1960, 2-dr., h/top, p/s, $350. 213-671-5977.

MGB, 1967, wire whls., lug. rack, $800. 213-821-3691.

Comet, 1961, $100. 213-371-7940.

Volkswagen, 1957, camper van, w/1964 motor, $425. 213-391-4636.

Volkswagen, 1968 Squareback, r/h, $1,050. 213-375-9397, 213-375-2091.

Volkswagen, 1969, radio, $900. 213-542-6745.

Volkswagen, 1972 Squareback, sunroof, radio, $2,300. 213-542-5163.

Opel Wagon, 1970 Super, 28,000 mi., $1,300. 213-370-9124.

Volkswagen, 1971, 28,000 mi., r/h, $1,600. 714-821-1685.

Lotus Europa, 1971, low mileage, $4,500. 213-759-7885.

Miscellaneous For Sale

Bunching Tables, wedge-shaped, oiled walnut, $35 pr. 213-545-7149.

Miscellaneous For Sale

Dining Room Set, Danish walnut, table w/2 leaves, 6 chairs, lge. china & small cabinets, $275. 213-541-3073.

Drapes, antique satin, 2 sets, gold, tangerine, $45 ea. 714-531-6738.

House, N. Westchester, 4-bdrm., 1¾ bath, lge. covered patio & det. rumpus rm., $42,000. 213-670-4702.

Drum Set, 5 incl. cymbals & cases, $125. 213-377-2544.

Minibike, Taco, 3½ h.p., new motor installed, $65. 213-377-1074.

Dining Room Set, 6 chairs, hutch, table & chair pads, Early American cherrywood, $300. 213-327-4478.

Motorcycle, 1967, 125 Sears Allstate, $100. 213-631-2926.

Motorcycle, 1969 350 Honda, $325. 213-372-6305.

House, 3-bdrm., 2 baths, paneled office, Hollypark, cpts., dps., bltins, f/place, $31,950. 213-532-8072.

Home, Lake Havasu, 1,400 sq. ft., 2¼ acre view lot, fully furn., $27,500. 714-637-0683.

House, 3-bdrm., family rm., 2 baths, w/w cpts., f/pl., bltins, air cond., patio cover, Anaheim, $31,500. 714-776-9599.

Console Stereo, 8′, Spanish Mediterranean, 1970 Continental Solid State Stereo Record & AM/FM radio, $275. 213-941-3804.

Tent, 10½ x 11 Continental style, nylon alum. frame, cases, $75. 213-375-3790.

Kittens, 2 Siamese, 2 part Siamese and part Burmese, avail. Sept. 10, mixed, $5; purebred $10. 213-679-8095.

Sofa, convt. dble. bed, $50, other items. 213-641-8355.

Auto Radio, Blaupunkt AM-FM-SW pushbutton, never used, $90. 213-530-0379.

Boat Trailer, 1972 Vanson, 20′, never used, $500. 213-378-7676.

Motorcycle, 1966 650 Triumph TR6, $850. 213-644-3587.

Tires, 4 Firestone Deluxe Champion tubeless, 6.45-14, $30. 213-534-4068.

Engine, Hemi 52 Desoto, $25. 213-674-9347.

Ironer, Ironrite, $25. 213-291-0025.

House Trailer, 8′ x 26′ Bell-Air, 1 bdrm., bath, $750. 213-330-8653.

Boat, 16′ Runabout, big W trailer, 65 h.p. Merc. Coupe Top, bait tank, extra gas tanks, $1,000. 213-754-2020.

Acreage, Palmdale-Lancaster, 2½ acres, easy terms, level roads, $3,990. 213-376-6205.

Dining Table, white Italian Provincial, 2 leaves, 4 blue uphol. chairs, $150. 213-347-4196.

Houseboat, 12x34, on Lake Mead, bltins, f/place, self-contained, sleeps 6, many extras, $6,000. 213-634-5978.

Camper Potti, Corlon portable, w/chemical flush & holding tanks, $50. 213-530-3432.

Sail Boat, 24′ foot Dolphin 104, fully equipped, 6 bags of sails, many extras, $7,500. 213-823-8642.

Studio Couch, w/cover, $10. 213-645-7972.

Boat, 15′ Nomad, & trailer, $150. 213-328-7989.

Wheels, 2 chrome, slotted, near new tubeless tires, 15″x5.60″ 4 ply, $65. 213-833-3944.

Cemetery Lot, Inglewood Park in El Portal plot, 2 grave sites, w/dble. internment, $1,000. 714-847-6455.

Mini Bike, Sears 3½ h.p., kick start, $125. 213-348-9928.

China, Noritake, old, 10-pc. place setting, extras, $60. 213-372-7875.

Piano, Upright, modern refinished, $180. 213-696-7529.

Wedding Ring, Marquise solitaire, white gold, Tiffany mounting, $300. 213-644-3742.

Typewriter, IBM Selectirc, elite type, $245. 213-254-3251.

End Tables, 2 walnut, $10 ea. 213-541-3000.

Dining Room Set, table, 5 chairs, buffet, mahogany, $150. 213-675-4239.

Dress, for mother of bride or groom, size 10, $20. 213-371-2229.

Coin Collection, 51 assorted silver dollars, $150. 213-644-6164.

Accordion, Contello, 120 bass, case $85. 213-374-8645.

Generator, 900 W., Honda, 1971 mod., 6 hrs., $200. 213-375-9811.

Bicycle, girl's 20″ Take-A-Part, $35. 213-676-3592.

Airplane, 1960 Comanche, 600 s.mo.h., auto flight, full gyro panel, IFR equip., $11,000. 714-532-1510.

Saddle, leather, 16″, $90. 213-774-1900.

Love Seat, $35. 213-372-0536.

Miscellaneous For Sale

Bedroom Set, dble., box springs, mattress, night stand, extras, $125. 213-320-9496.

Stove, 2-burner, hvy. duty Coleman, $13. 213-323-7171.

Drafting Machine, Bruning w/scales, $65. 213-645-1274.

Home, in Hawthorne, 3-bdrm., pool, 1¾ baths, lge. den, lanai rm., covered patio, dble. lot, $61,500. 213-676-3589.

Box Springs, youth size, 15-yr. guarantee, $35. 213-327-4176.

House, 3-bdrm., 2 baths, dps., cpts., lge. lot, block fence, $29,900. 213-677-0182.

Motorcycle, Honda CB 450, 213-376-3998.

Dishwasher, white portable, auto., Lady Kenmore, used 1 yr., $100. 213-377-0783.

Tent Trailer, Apache, $250. 213-328-3306.

Wall Phone, oak, $55, other items. 213-673-4322.

Meat Freezer, $40. 213-939-8053.

Rabbit, & cage, feeders, $1.50. 213-679-5177.

Hide-A-Bed, green tweed cover, $15. 213-672-5649.

Patio Set, white metal 24″ round table, 2 chairs, $10. 213-371-5130.

Aquarium, 20-gal. Metaframe show tank, access., $18. 213-722-6213.

Motorcycle, 1969 H.D. Sprint, SS, 350 cc, $575. 213-833-7306.

Camera, Leica III G, Elmar, 50mm, access., $150. 213-869-6508.

Camera, Pentax, many access., $250. 213-376-5648.

Tape Recorder, Concord, auto., reverse, 776, $135. 213-324-8618.

Corner Hutch, birch, 41″w x 24″d x 77″h., $150. 714-637-4194.

Lot, California City, R-1, $2,900. 213-293-5888.

Motorcycle, 1970 Yamaha 350, $400. 805-492-4245.

Welder, Birdsell 190 AMP. AC, 50′ ext. cord, w/welding equip., $300 or sell sep. 213-322-5136.

Engine, 1964 361 Dodge, & fact. air cond. $100. 213-375-8460.

Outboard Motor, 9½ h.p., 1972 Evinrude, $450. 213-457-9600.

Cartridge & Tape Deck, auto. FM, $35. 213-325-2512.

Dining Room Chairs, 4, Mediterranean, $8 ea. 213-860-3022.

Motorcycle Helmet, never worn, meets 2-90-1-66 stds., $25. 714-633-0328.

Occasional Chairs, 2, coral & gold, $10 ea. 213-670-2564.

House, 2-bdrm., corner lot, No. Inglewood, $18,500. 213-672-1090.

Color Processing Kit, CP-5, 2, $5 ea. 213-327-4267.

Aquariums, 15-17½-6½-8½ gal., stands, equipt., incl., $100. 213-329-7382.

Sewing Machine, portable Singer zig-zag, $60. 213-372-7841.

Acreage, 2½ acres, Antelope Valley, E. side, water & elect. to prop. cor., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Pup, German Shepherd, AKC, female, 11 wks., $75. 213-329-5644.

Wedding Gown, George Mauer orig., size 10, $50. 213-375-4312.

Motorcycle, 1969 Hodaka Ace 100, 5 spd., $300. 213-377-3552.

Acreage, 1 1/10 acres, Oak Creek Canyon, Ariz., 100 yds. to Oak Creek, $7,500. 213-923-9957.

Sailboat, 24′ sloop, 25 h.p. inbd. motor, 3 dacron sails, hoist gear, sleeps 3, $4,000. 213-379-5652.

Acreage, 2½ acres, Little Valley Lassen County, $4,000. 213-645-2711.

Coffee Table, Alabaster marble top, & stand, $30. 213-675-1000.

Box Spring & mattress, full size, Hollywood frame, $35. 213-326-3135.

Baby Items, 3 pcs., $20. 213-780-7476.

Aquarium, 26 gal. stand, Dinaflow filter, htr., $60. 213-320-8845.

Trailer, 1966 Apache Buffalo, sleeps 6, bltin stove, htr., awning, $600. 213-860-3793.

Condominium, 2-bdrm., den, 2 baths, shag cpts., gym, saunas, swim pool, tennis cts., golf course, rec. hall, $34,950. 213-370-6348, 213-325-0788.

Range, gas, drop-in, hood, white w/black glass, $125. 714-637-7662.

AM Stereo FM radio, comb., Garrard record changer, 58″ long, 28″ high, hand-rubbed oiled walnut, $200. 213-674-1400.

Miscellaneous For Sale

Dishwasher, auto. GE, white, chop block on top, semi-portable, $100. 213-459-1045.

Wanted to Buy

Answer Phone System. Box 802.

Free (To Be Given Away)

Gravel, pea size, to anyone willing to remove it. 213-325-2637.

Pups, Spaniel-type & mother, 12 mos. old. 213-391-5046.

Kittens, 3 mos. old. 213-454-1540.

Pups, Beagapoos, beagle & poodle comb. 213-675-3931.

Wooden Windows, used, 24″ x 36″ & larger. 213-379-4517.

Rentals Offered

Apt., 1-bdrm., furn., covered car ports, near Northrop, $145 mo. 213-821-9110.

Cabin, Lake Arrowhead, close to lake & village, patio, f/place, $80 wk., $30 wk/end. 213-845-5949.

Apts, furn., pool, rec. rm., carport, laundry rm., walking distance to plant, single, $125, 1-bdrm. $150. 213-644-1074.

Home, Bass Lake, $150 wk. 213-374-3702.

House, unfurn., 4-bdrm., 2-story, den, swimpool, near all schools, Carson area, $320 mo. 213-835-7669.

Cabins, Big Bear Lake, completely furn., $18 day, $90 wk. 714-866-2548.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

Studio Apt. 2-bdrm., 2-bath, sub. gar., adults, $225 mo. 213-670-6084.

Cottage, Ocean Bch., San Diego, near Mission Bay, $80 wk. 714-826-2007.

Cabin, Big Bear, Moonridge, 3-bdrm., 2-baths, kit., utens, f/place, family only, $125 wk., $50 w/end. 213-326-7232.

Cabin, Big Bear Lake, Moonridge, f/place, sleeps 4, family only, $75 wk., $30 w/end. 714-528-2810.

Rentals Wanted

House, 1 or 2-bdrm., unfurn. $115 or $140 mo., have 1 dog, close to Northrop. 213-677-5033.

Child Care

Child Care Wanted, Monday-Friday, 7:45 a.m. to 5 p.m., infant 6 mos. 213-947-1347.

Babysitting, afternoons or evenings, So. Bay area. 213-371-8167.

Personals

My sincere thanks for the kind expressions of sympathy on the recent passing of my father. BERNIE SCHIER.

I want to thank all my Northrop friends & co-workers for an enjoyable retirement party & gift. JOE SMITH.

Thanks to all my very good friends who helped make my retirement party a happy one. P. W. SMITH

We wish to thank our many friends for the wonderful retirement party, gifts & good wishes. HOWARD & ANNE ALTMAN

I wish to express my appreciation to all my friends at Northrop for making my retirement party an event to remember. R. B. TOMPKINS

Share rides 2 or 3 days wk., So. Torrance area to NCL Bldg., 8 a.m.-4:42 p.m. or 8:15 a.m.-5 p.m., Aircraft Div. ext. 2065, 213-325-5198.

I wish to express my sincere appreciation to my Northrop friends for the retirement party & presents. PAUL VON ESSEN

Ride Wanted, part time, 8 a.m.-4:42 p.m., from Westminster to Plant I, Aircraft Div. ext. 1211, 213-772-1896.

Many thanks to my friends for the cards, flowers & expressions of encouragement concerning my disability, J. S. "ARMY" ARMSTRONG.

Ride Wanted, 7 a.m.-3:42 p.m., Artesia Blvd. & Inglewood Ave. area to Plant I, 213-379-0930.

Ride Wanted, 7:30 a.m.-4:12 p.m., Del Amo & Cherry or Del Amo & Carson, Long Bch. to Mariposa, ext. 6411, 213-537-0757.

Ride Wanted, or car pool, 8 a.m.-4:42 p.m., P.V. Dr. North & Rolling Vista Dr. to Engg. Science Ctr., Aircraft Div. ext. 2313, 213-530-3666.

For Sale or Trade

House, 2-bdrm., concrete fence, near school & shopping, $23,950 or trade equity for mobile home. 213-532-6687.

Camper, 8′ Merced, Cabover, stove, 16-gal. water tank, 75-lb. ice box, $695 or trade for VW of equal value. 213-370-6400.

Washer, auto. G.E., 2 yrs. old, white, $75 or trade for stereo tape. 213-632-2642.

Northrop Night at the Pops To Be Televised September 5

Northrop employees throughout the nation will be able to participate vicariously in the Northrop Night at the Pops, featuring the Boston Pops Orchestra, Steve Allen, soloist, and arranged by the Northrop Precision Products Department, Norwood, Massachusetts.

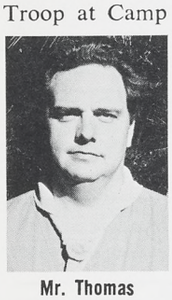
The National Educational Television network will broadcast the performance, which salutes the Boston Museum of Science, Tuesday, September 5. Check your local paper for time.

Pops conductor Arthur Fiedler has promised a wide variety of musical selections ranging from classical to popular favorites, and the broad talents of Steve Allen as a composer, conductor and musician are widely known.

The first concert, July 11, 1885, was called the "Music Hall Promenade Concert," but due to its popularity the series was eventually renamed the "Boston Pops."

THOMAS LAUDED FOR SCOUT WORK

W. T. Thomas, Assembly and Test Inspection, spent a week as the leader of his Boy Scout Troop at Camp Tahquitz.



Mr. Thomas

"The summer camp program is a vital part of Scouting, and through Mr. Thomas' efforts, he has made possible a week's camp for these boys," wrote J. Lamont Davis, Long Beach area council president, in a letter to H. W. Sherwood, supervisor, Quality Engineering.

Bowlers To Start New Fall Season

Dorothy Baldwin, NRC Bowling commissioner, reports that a new winter bowling league is now forming for the Hawthorne Bowl starting Monday, September 11. This will be a five 25-maximum trio of 12 teams.

Other winter bowling leagues are scheduled for: Wednesday, September 6 at the Missile Bowl; Monday, September 11, Tropicana; Tuesday, September 12, Southwest Bowl and Thursday, September 14, Gardena Bowl.

TOASTMASTERS

The Northrop Toastmasters Club has changed its meeting place to the Pen & Quill Restaurant, 3501 N. Sepulveda, Manhattan Beach, according to Earle Miller, vice president.

The club meets each Wednesday evening at 6:30.

OSHA—New Safety And Health Act

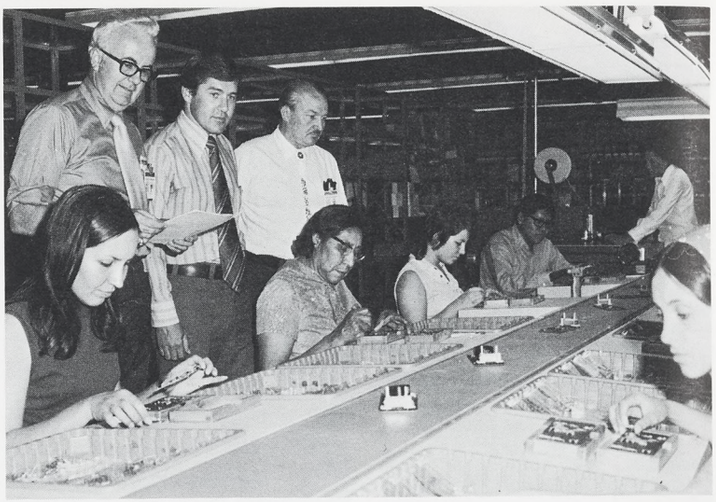
(Continued from page 1)

meeting in July and will meet monthly to establish safety and health policies and guidelines, review standards and procedures for critical operations and work areas, investigate high hazard conditions and coordinate all safety and health action items for the division.

Permanent council members are H. L. Janssen, W. R. Carter, C. H. Getz, L. A. Jones, Norm Henry, L. J. Knight, B. L. Landrum, J. J. Rahiya, safety engineer (advisor), and B. E. Pennington (coordinator).

Housekeeping and Safety Committees are being formed at Palos Verdes and Hawthorne.

MANAGEMENT SAFETY Council members and alternates, from left, Ross Rogers, Bob Keller, Buck Pennington, George Chalmers, Lloyd Jones, Norm Henry and Bob Mangis.



SUPERVISING preparations for full production on the smog devices are, from left, William Harden, Hawthorne Navigation Department, Jerry Howell, plant manager, and Jack Myers, Quality Control superintendent, at New Town.

AT NORTHROP DAKOTA

Smog Devices In Production

Northrop Dakota is in full production on 90,000 exhaust emission control devices for California cars under a contract recently awarded by Air Quality Products, Inc. of Orange County.

"The device is designed to automatically monitor and control the vacuum spark advance in order to reduce hydrocarbons, oxides of nitrogen and carbon monoxide," according to C. A. Porterfield, program manager.

"With our semi-automated production line, which sequences and installs many of the components on our printed circuit board chassis, we are planning to produce approximately 5,000 units per week with the ability to double or triple that rate," he added.

Several Hawthorne employees are temporarily assigned to New Town to assist in establishing the production line, including Pete Cuomo, program supervisor; Bob Fraser, Test and Inspection; Don DeArman and Bill Harden, Manufacturing Engineering; and Bob Luce, Receiving Inspection and Test.

California law will require emission controls on all 1955 to 1965 automobiles in the state on which the title is transferred after September 1, 1972.

DONORS NEEDED

The Electronics Division's Hawthorne facility has scheduled the next bloodmobile for Friday, September 1 at the Plant Three cafeteria, Gate 16 on Crenshaw Boulevard from 8:30 a.m. to 6 p.m.

Transportation will be available for all donors.

The Palos Verdes facility has arranged for their "once a year" bloodmobile to be held on Tuesday, September 5 in Building Two.

Call Arnah Pakes, ext. 261 for details.

IDEAS PAY OFF FOR THREE EMPLOYEES

Creative thinking rewarded three Electronics employees with a total of $115 for their suggestions during July.

Alex Martinez, Material Estimating, received $50 for his illuminated crosswalk suggestion. Robert Bone, Digital Systems Test, was also awarded $50 for an operational amplifier substitution idea and Chris Moyer, Special Projects, $15 for a rest room modification suggestion.

T. E. BROPHEY, Computer Programming unit, is featured as "Motel" in the Kentwood Players production of "Fiddler on the Roof," playing now through August 26 at the theatre in Westchester.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 9 | September 1972

DAVID N. FERGUSON, Electronics Division vice president, welcomes BSL employees to new facility.

Berkeley Scientific Labs Complete Facility Move

The Medical Data Systems of Berkeley Scientific Laboratories has completed its move into a new 24,000 square foot facility at Eden Landing Industrial Park in Hayward, Calif.

BSL, the nation's largest and oldest manufacturer of clinical data acquisition systems for the medical industry, formerly was located in Berkeley, Calif.

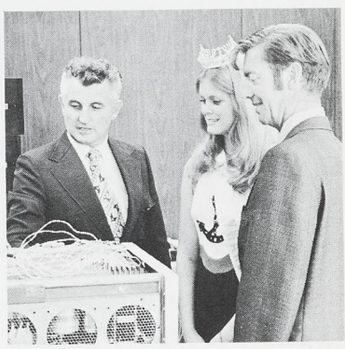
"Eden Landing represents a substantial improvement in our production capability," said H. W. Turney, vice president and general manager. "Our future growth in the medical field has made this move a necessity."

The new site in Hayward is situated in close proximity to air, rail and ground transportation in the heart of the San Francisco Bay area. In addition to the ample office space and manufacturing area, the plant includes a separate computer exhibit room for customer previews.

BSL was formed near the campus of the University of California-Berkeley. The company started as a small, research and development firm founded by several scientists who first saw a need for practical data processing equipment in the clinical laboratory.

Utilizing up-to-date computer technology specifically directed towards the medical industry, BSL offers a nationwide sales and service force to provide both large and small clinical laboratories with equipment designed expressly for their needs.

BSL was acquired by Northrop in February 1972.



H. W. TURNEY, BSL vice president and general manager, points out some componentary on the CLINDATA data acquisition system to Miss Hayward and W. Van Blaricom, first vice president, Hayward Chamber of Commerce.

Kaufold, Stone Assigned To New Management Posts

Roy Kaufold has been appointed president of Northrop Dakota, Inc., it was announced by David N. Ferguson, vice president and general manager, Electronics Division.

This assignment will be in addition to his regular duties as vice president and manager of the Avionics Department.

In addition to his duties as director of Operations, R. E. Stone is appointed vice president of Northrop Dakota, Inc. Mr. Stone will assist Mr. Kaufold in assuring the continued achievement of growth and efficiency goals which have been established for NDI, according to Mr. Ferguson.

Northrop Dakota, Inc., located in New Town, N. D., is a wholly owned subsidiary of Northrop Corporation.

REGISTRATION FOR VOTERS UNDER WAY

Craig MacConnell of the Industrial Relations staff has been appointed a deputy registrar of voters for Los Angeles County and will be available to register Northrop voters, according to H. L. Janssen, director, Industrial and Public Relations.

Mr. MacConnell is in Palos Verdes on Tuesdays and Fridays and Hawthorne on Monday, Wednesday and Thursday.

The final day for registering is Oct. 8. You must register or re-register if:

- You did not vote in the 1970 general election.
- You recently moved into the state, county or precinct.
- You changed your name by marriage or other legal procedure.
- You desire to change party affiliation for official records.
- You are a new voter who will reach the age of 18 years by the election date.

MASTER PATTERN IN TWO DAYS

'Henry' and 'Henrietta' Make Drafting Easier, Faster

"Henry" and "Henrietta" are the toast of the Navigation Department at the Electronics Division.

"Henry Hotlead" and his mate "Henrietta" — so named by Roland Gagon, assistant to the director of Engineering — are automated drafting machines, the first of their kind on the west coast.

Karl Baird, lead engineer, Automated Graphics, reports that the new equipment can produce printed circuit board master patterns in two days — as opposed to six weeks by manual drafting.

Using the automated equipment, development engineers produce a rough layout drawing with certain key dimensions, feed it into the machine, and receive a finished mask ready for printed circuit board production.

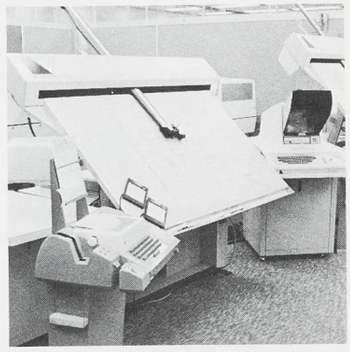
Contrary to popular belief, automation in this case has led to increased personnel requirements, as the new capability has resulted in additional contracts.

Bob Wilson, supervisor, Electronics Packaging unit, said the machines can produce both hybrid and large scale integration masks, mechanical assembly drawings, and MIL specification schematics.

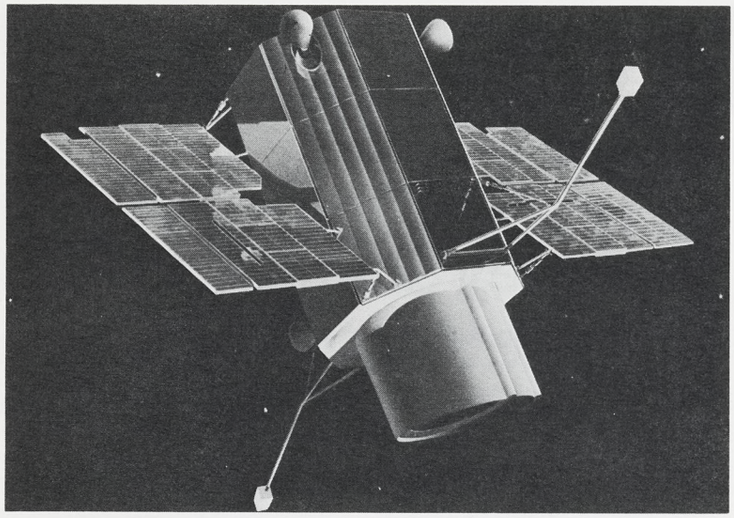
This broad capability results from an extensive library of specific job tape cassette programs, and the flexibility offered by the disc storage capacity for temporary program data.

"Henry and Henrietta are easy to get along with," Mr. Wilson said. "We have taught inexperienced personnel how to produce satisfactory drawings in a matter of just a few weeks."

When asked for comment, all Henry would say was "Chug-Chung-clackety-clack." Henrietta, unlike most wives, kept her mouth shut.



'HENRY', LEFT, and 'Henrietta' — first of their clan on the west coast.



COPERNICUS — NASA'S ORBITING ASTRONOMICAL LAB

NORTHROP ASSISTS

NASA's 'Big Eye in Space'

Northrop technicians had an important role in the highly successful launch of NASA's Copernicus orbiting telescope.

Copernicus is a 4,900 pound orbiting astronomical observatory satellite which contains a 32-inch diameter telescope. It was placed in orbit 460 miles above the earth on Aug. 21 by an Atlas-Centaur rocket from Cape Kennedy, Florida.

The "Big Eye in Space" was designed to operate above the earth's atmosphere which greatly restricts clarity and resolution of earth-bound telescopes.

It is expected to help revolutionize present day space astronomy, revealing secrets of interstellar space heretofore impossible.

Provided Support

Northrop personnel of Northrop Services, Inc. at NASA's Goddard Space Flight Center, Greenbelt, Maryland, provided technical and environmental testing support to NASA on the Copernicus project.

Northrop Services, Inc. activities at Goddard include Structural Dynamics Support, Thermal Vacuum Operations, On-Line Data Collection and Analysis, Optics and Solar Simulation Support and Clean Room Support.

To accomplish these duties, NSI operates and maintains 15 vacuum and thermal chambers for testing scientific satellites. Solar simulation, contamination control, and gas analysis activities support space chamber operations as required.

NSI manages, operates, and maintains the Goddard Space Flight Center acoustic generation and vibration laboratory, and its associated data acquisition systems and equipment.

NSI personnel also operate the 60-foot, 500,000 pound environmentally controlled Launch Phase Simulator Centrifuge. The simulator was built by Northrop for the NASA space program.

NSI is a Northrop subsidiary. Frank W. Lynch is NSI president with vice president William J. Oakes as general manager.

Project Men

Ron Sheffield is Northrop's project manager at Goddard. Assisting him in providing testing on various NASA spacecraft, including the Copernicus orbiting telescope, are supervisors Steve Suarez, Structural Dynamics; Charlie Armbrust, Data Collection and Analysis; Dave Orbock, Thermal Vacuum; and Tom Amacher, Facility Maintenance and Special Projects. John Packard is staff assistant to the project manager and Howie Koth is business manager on the project.

HEARST CASTLE TOUR SCHEDULED

An NRC Travel Club tour for Hearst Castle, San Simeon, will depart from the Aircraft Division Plant One cafeteria at 9 a.m. Oct. 7.

Round trip bus transportation, double occupancy rooms at the Golden Tee Resort Lodge and a choice of either the upper or lower floor tour of the castle costs $24.50. Meals are not included.

Call Gayle Hayes, Aircraft Division ext. 2486 for reservations.

Citizenship Committee Asks Support for '72 Elections

All Northrop employees will have the opportunity to volunteer their services and to contribute financially to the election of the presidential candidates of their choice.

Under sponsorship of the Northrop Good Citizenship Committee, announcements have been posted on all bulletin boards urging employees to participate in the 1972 presidential election campaign.

"This year's presidential election will largely determine the political, economic and social direction of our country for the next four years. Because of its importance, each of us should consider making a significant contribution to the election of the presidential candidate of his choice," the committee stated.

"We should register, vote, and if possible, offer to serve as a volunteer in campaign activities for the candidate we regard best. Many may prefer to contribute some financial support, and for this purpose we are providing a means by which you can do so in complete privacy and independence of choice."

All donations will be sent to an independent auditing firm, which will forward them to the specified candidate.

Contribution cards and envelopes are available in racks posted at all bulletin boards where the Good Citizenship announcements appear.

Employees who wish to volunteer their services have been urged to apply to the Good Citizenship Centers in their respective plant locations. Good Citizenship Committeemen emphasize that the program is entirely voluntary and the political choice of each individual is handled in a confidential manner.

Good Citizenship Centers have been established in the following locations:

Aircraft Division, Marie Tully, ext. 2486; Electro-Mechanical Division, Robert Boostrum, ext. 288; Ventura Division, Patricia Schreiner, ext. 441; Electronics Division, Harry Clark, ext. 425; Research and Technology Department, Esther Demoss, ext. 2711.

Campbell Elected V.P., Controller

Jack B. Campbell has been elected vice president and controller of Northrop Corporation, James D. Willson, senior vice president, Finance and treasurer, has announced.

Mr. Campbell, who joined Northrop 20 years ago, formerly was in charge of Eastern Operations for Page Communications Engineers, Vienna, Va., a Northrop subsidiary. Prior to that he served as Page's chief financial officer.

In making the announcement, Mr. Willson noted that Mr. Campbell's many years of experience will "contribute to the continuing success of the financial management of the company."

A certified public accountant, Mr. Campbell holds an accounting degree from UCLA and has completed advanced studies in taxes, systems, and financing. He is a member of the American Institute of Certified Public Accountants.

James Corcoran To Head Saudi Arabia Operation

James R. Corcoran, Jr., has been named vice president and Corporate executive for Northrop Corporation's operations in Saudi Arabia, Thomas V. Jones, Northrop president, has announced.

In making the announcement, Mr. Jones said Mr. Corcoran's extensive background in international business and financial management will make a substantial contribution to Northrop's business interests in Saudi Arabia.

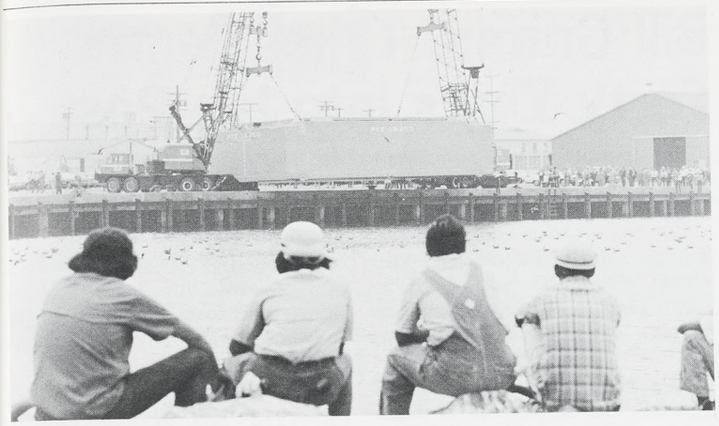
Mr. Corcoran formerly was senior representative, Financing Services for Bechtel Corporation. Prior to that he was president and chief executive officer of Champion Resources, Inc. He has held a number of key management positions.

ART SHOW SET

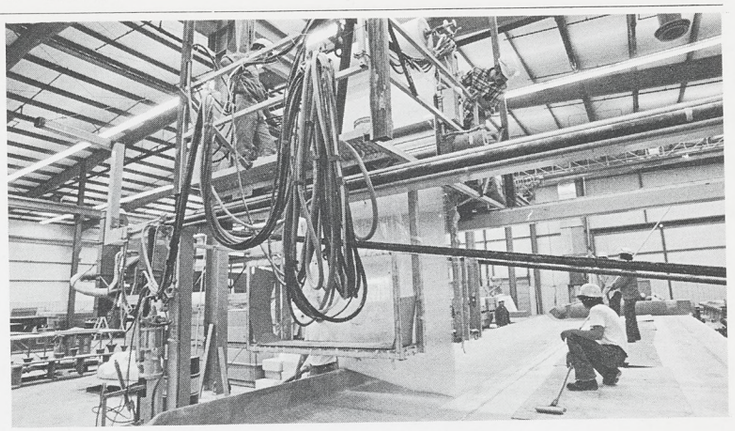
The Electronics Division's P.V. facility will again be the site for Art for Fun(d)s Sake, one of Southern California's largest art festivals, sponsored by the Palos Verdes Community Art Assn.

The open-air affair is set for Oct. 14 and 15 from 10 a.m. to 5 p.m.

Artists from the Aircraft, Electro-Mechanical and Electronics divisions will be among the 250 Southland artists exhibiting at the show.



SPECTATORS WATCH LAUNCHING

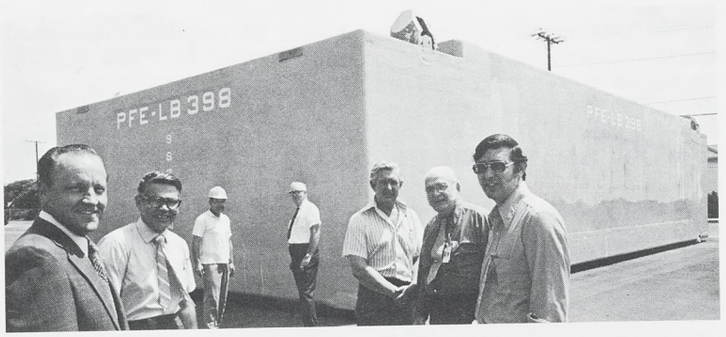


UNIQUE MACHINE LAYS FIBERGLASS

Northrop Hueneme Builds Its First Fiberglass Barge

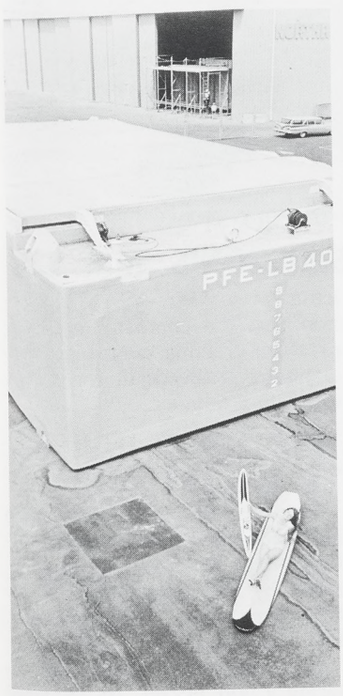
NORTHROP HUENEME launched the first of its new fiberglass barges on Aug. 30. The barges, for use with the revolutionary new maritime cargo handling system LASH (Lighter Aboard Ship), are the largest displacement fiberglass cargo vessels in the world. Here the camera of Bob Thornton catches highlights of the launching ceremony and work along the production line. Northrop will build 200 of the barges for Pacific Far East Line.

WARREN MURRAY monitors stress during tests of the new fiberglass barge. Barge will be floated to ships and lifted aboard, greatly facilitating loading.



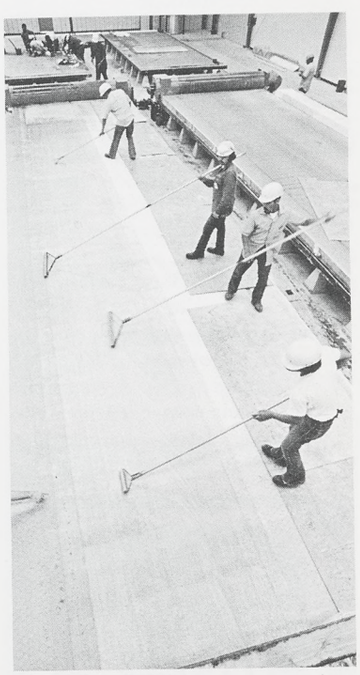
FROM LEFT, Larry Carroll, Bob Worth, Jack Bunnell, Jim Goff, Bob Lochemes, John Nichols and Bill Glass formed nucleus of the Northrop Hueneme operation. They are experienced in 747 wing fairing production which utilizes fiberglass construction.

LUDWIG HEINZE LOHERNZ tightens fire hose connection during water fill test of the new fiberglass barge at Northrop Hueneme.

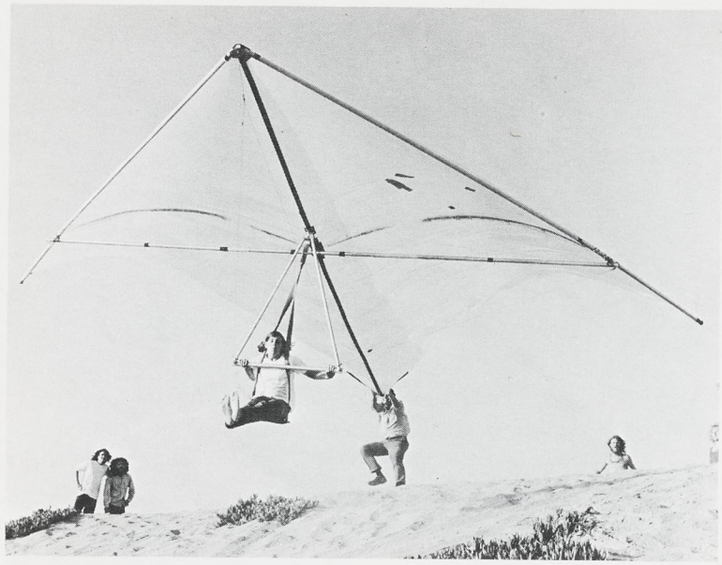


LINDA MC CLAIN, Miss Port Hueneme, contrasts smallest fiberglass marine structure, a water ski, with Northrop's new barge, the largest displacement fiberglass cargo vessel.

DIGNITARIES at the Northrop barge launching are, from left, Earl R. Bennett, secretary, Oxnard Harbor District, Leo J. Ramirez, vice president, Oxnard Harbor District, L. B. Carroll, managing director, Northrop Hueneme, George Gmelch, vice president of Operations, Pacific Far East Line, Inc., Bob H. Jennings, member, Oxnard Harbor District, Welko E. Gasich, president, Northrop Hueneme, and Cecil Schnelle, member, Oxnard Harbor District. Hubert Catlin, president, Oxnard Harbor District, was out of the city on business.



FABRICATING a fiberglass side panel are Del Earl, Richard Telles, Richard Porras, Frank Robles and Robert Esquivel.



NORTHROP glider enthusiasts take off a la Otto Lilienthal.

HONORING OTTO

Glider Interest Soaring

Three Northrop men work on the A-X and F-5E — the world's most modern aircraft during the week, but on the weekends they step back to aviation's diaper days. And it all came about because of a 123rd birthday party for a man who has been dead 76 years.

"Yes," said Nick Linardos, Current Aircraft Systems Requirements, "that's the way it started. Wil Tebo, manager, A-X Test, said he was going to a 'Happy Birthday, Otto Lilienthal, Meet,' which we found out was a fancy name for a Hang-Glider championship tournament.

"It was so-named to honor Lilienthal who was a pioneer glider experimenter. We had never heard of a hang-glider before, but Wil explained that it was an all-inclusive name for anything you could put together, hang-on to and fly without power. He had built one of bamboo, wire clamps and polyethylene plastic sheeting for his sons Glen, Alan and Bruce to fly at the meet."

The idea sounded so intriguing that both Mr. Linardos and Carl Weyl, manager, F-5 Aerodynamics, built their own glider.

"However, I was smart enough to make my sail too small for me to ride it," Nick reports. "So my sons, Jim and John, who are more pioneering than I am, fly it."

They discovered that there is a rapidly growing interest in hang-glider flying. Each weekend groups of enthusiasts gather at the sand hills at Playa Del Rey to emulate their hero, Otto Lilienthal.

One way to get airborne in the gliders is to run down hill into the wind until air flowing over the camber of the plastic or cloth sail creates enough lift to get man and wing into the air. Other more hardy souls jump off cliffs, buildings, and anywhere else they can get elevation. This is not recommended, however. Experienced glider fans say you should never attempt to fly higher than you are willing to fall.

Incidentally glider fans who pass along this rule rarely follow it themselves.

There are several types of wings used by hang-glider fans. The Northrop trio prefers the Rogallo wing type. This is a flexwing design which NASA recently tested as a rocket-booster recovery system. The basic concept of the Rogallo wing is supposed to go back to the pterodactyl, the gliding dinosaur.

"Our design is a bit more modern than that, of course," Nick reports. "The one Carl Weyl built with his sons, Ray and Bob, uses aluminum tubing, tape, rigging wire and 300 square feet of polyethylene plastic sheeting. So you can see that even if our design is 50 million years old, we approach it in a modern manner."

Bill Gramm Takes Journey Forty Years Into His Past

Bill Gramm, Electro-Mechanical Division, has just completed a trip 40 years into the past.

For his vacation this year, Mr. Gramm decided to seek the house where he was born in South Dakota — a house that he last saw when he was nine years old.

"I knew the general location," he said. "But not the exact place. I did recall very vividly how the old place looks. It was a 15-room house with a summer kitchen where we cooked for summer thresher hands. I drew a picture of it to take with me so I could show it when I asked for direction."

To his surprise, he had no trouble. In a bank in Menno, S.D., he found people who had known his father 40 years ago. "They told me where to go."

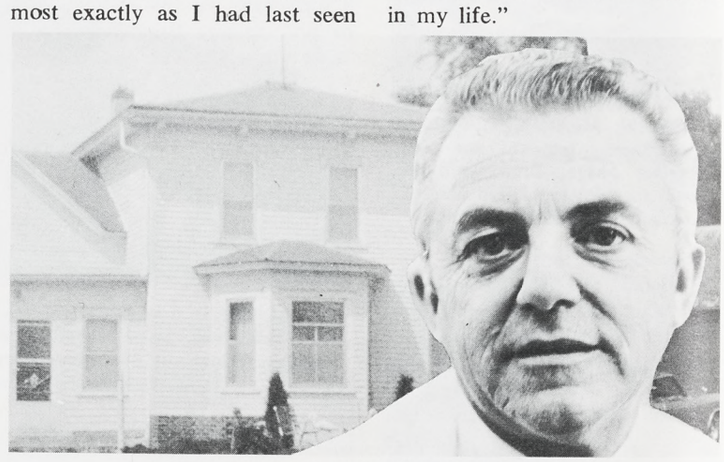
It was a shock, he said when he saw the place, which is now 100 years old. "I had the feeling I had really stepped back in time," he recalled. "It was almost exactly as I had last seen it. The only changes in the last 40 years were the summer kitchen had been removed, and some of the fences taken down. The barn had been repainted and had a new roof, but the rest of the house and even the old outhouse were still as they had always been."

The house was originally built in 1872 and bought by Mr. Gramm's father who moved into it in 1905, living there until the early 1930's when the family moved to California.

"It was a strange feeling," he said. "I felt that I could walk in, hang up my hat and feel at home again."

On the trip Mr. Gramm was accompanied by his wife, Olga, and son Andy, 15. They toured the major national parks in Utah, Montana and Wyoming, but the highlight was his visit back "home."

"It was," he says positively, "the best vacation I've ever had in my life."



BILL GRAMM AND HIS OLD HOME

COMPUTER CONFUSES OLSON'S 'MR. Y34'

Computers are getting more human every day — they get confused like people.

At least this is the experience of H.D. Chen, Olson Laboratories engineer.

Mr. Chen has just received a form letter, addressed by a computer. It was addressed to H. Chen Nrthrp8200 Y34 and began "Dear Mr. Y34."

And then just to make sure that Mr. Chen realized that he had a new designation, the letter repeated the "Mr. Y34" three more times, ending by assuring him, "You can take advantage of this training opportunity, Mr. Y34, without interfering with your work."

After a careful study of the letter, it is "Mr. Y34's" suggestion that the company use their excellent training course on their computer. It needs it, for Y34 is a building number.

NORTHROP INVITED TO DISNEYLAND

Northrop employees have been invited to take part in a "Family Fun Night at Disneyland" sponsored by the Association of the U.S. Army Oct. 20 from 8 p.m. to 1 a.m.

Northrop ticket outlets are offering 1,000 tickets on a first-come, first-served basis. Each sells for $4.25 and includes admission to Disneyland and unlimited use of all attractions, exclusive of shooting galleries.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

T-Bird, 1956, completely restored, radio, p/b, p/s, $1,995. 213-756-1812.

Station Wagon, 1969 Pontiac Bonneville, a/c, p/s, p/b, $2,450. 213-377-6658.

Buick, 1964 Wildcat, 4-dr., new batt., $550. 213-644-6580.

Ford Bronco, 1969, a/c, o/sized tires L78-15 & whls., $2,450. 213-378-5382.

Falcon, $200. 213-532-4625.

Station Wagon, 1966 Ford, r/h, a/c, $650. 213-928-2257.

Station Wagon, 1971 VW Mod. 411, 85 h.p., auto. trans., 6,500 mi., $2,700. 714-774-9183.

Continental, 1967, $1,500. 213-644-3376.

Austin Healey 3000, 1960, wire whls., $595. 213-378-1140.

Pickup, 1966 Chev. ¾-ton, w/10′ o/head camper, many extras, $2,500. 213-675-3254.

Lotus Europa, 1971, $4,500. 213-759-7885.

Rambler American, 1964, r/h, $450. 213-644-7088.

Austin America, 1969, new tires, trans., $595. 213-376-5648.

Ranchero, 1968 G.T., air, p/b, p/s, 47,000 mi., $1,800. 213-835-7663.

T-Bird, 1957, eng. & trans. o/hauled, $1,850. 213-371-6168.

Volkswagen, 1968 Squareback, r/h, $1,050. 213-375-9397, 213-375-2091.

Fiat, 1967, 850 Spyder, $650. 213-672-3133.

MGB, 1966, 54,000 mi., tonneau cover, $1,200. 213-377-4230.

Pickup, 1966 Ford, w/8′ camper, V-8, a/t, radio, $1,550. 213-377-8155, 714-249-3044.

Plymouth, 1966, Belvedere, r/h, V-8, 4-dr., $575. 213-329-3548.

Volkswagen, 1300, 1965, radio, full reclining front seat, $495. 213-823-4059.

Rover, 1968, auto. 2000, chrome whls., 4-dr., $1,250. 213-675-5712.

Volkswagen, 1966 bus, $450. 213-835-3985.

Station Wagon, 1963, Fairlane, V-8, auto., r/h, p/s, $375. 213-671-4550.

Jaguar, MK X, 1963, 4-dr., p/s, p/ b, $1,000. 213-371-8275.

Plymouth, 1969, Custom Sub. 2-seat wagon, auto, a/c, $2,250. 714-892-7174.

Fiat, 1968 850 Spyder, r/h, eng. rebit. $1,000. 213-379-6425.

Miscellaneous For Sale

Motorcycle, 1967 Bultaco, 200 cc, new gear box, $299. 213-274-0589.

Travel Trailer, 26′ 1969 Monitor, Eastern coach, self-contained, sleeps 6, 17′ awning, screen rm., $3,700. 714-842-4688.

Stove & dble oven, Magic-Chef Chateau mod., rotisserie w/3 spits, 30″ w., 6′ 5½″ high, white, $200. 213-421-0145.

Movie Outfit, 8 mm, $75. 213-679-6982.

Dishwasher, G.E. portable elec., full size, copper, chop. block top, $90. 213-530-5526.

Tires, 4 Firestone fiberglass belted, E-70-14, $80. 213-675-2514.

Refrigerator, 18′ G.E. 2-dr., white, $50. 213-542-5434.

Room Air Conditioner, Coldspot, 5,000 btu, $60. 213-347-9756.

Sloop, 16′, fiberglass, w/trailer, $500. 213-985-6968.

Coffee Table w/2 end tables, walnut, $20. 213-676-0818.

Mini Bike, Bonanza 1200, 3½ h.p. Tecumseh, $95. 213-675-0490.

Mobile Home, 2-bdrm., 1971 Homette, 20′ x 44′, 2 baths, air cond., & lot 90′ x 120′ fenced, $13,500. 714-897-3703.

V.T. V.O.M., Knight, lge. 6″ meter, $30. 213-676-5101.

Acreage, 2½ acres, Flamingo Ests., 8 mi. north of Yucca Valley, streets, water, pwr. $5,000. 213-320-8325.

Rug, bear skin, $100. 213-675-1000.

Crib & mattress, high chair, $15 or sell sep. 213-326-3135.

Miscellaneous For Sale

Ski Boat, 16′ Tahiti, trailer, 125 h.p. Merc. outboard, $1,850. 213-869-2673.

Strip Chart Recorder, Techni-Riter, 20-channel, $35. 213-545-7149.

Bed Frames, 2 twin, metal, padded h/boards, $10. 213-374-8645.

Freezer, 21 cu. ft., upright, white, $350. 213-537-0757.

Formals, size 7-8, $5 & up. 213-635-4104.

Dress Form, Adjust-O-Matic, for sizes 8-20, $5, other items, various prices. 213-837-4525.

Sailboat, 24′, inbd., freshwater cooled aux. eng., sleeps 3, $4,500. 714-833-1331.

Dog, basset hound, A.K.F. regist., male, 2 yrs. old, doghouse included, $50. 213-596-0433.

Saxophone, Greisch Commander alto, $60. 213-377-8508.

Picnic Table, umbrella, $30. 213-675-6020.

Golf Shoes, ladies' Arnold Palmer, size 7B, worn once, $10. 213-784-3802.

Acreage, 2½ acres, 1½ mi. from Calif. City golf course, 10% dn., $6,600. 213-430-1952.

Encyclopedia Britannica, set w/2-vol. dictionary, 1972 ed., not used, $300. 213-644-4859.

Range, gas, Magic Chef, white, self-cleaning ovens, completely auto., $350. 213-926-5665.

Lawnmower, gas, & edger, $45 ea. 213-532-6687.

Piano, Wurlitzer elec., $200. 213-370-7861.

Camper, Tear Drop, 8′ long, ½ cabover, sleeps 3, equip., stove, ice box, $400. 213-865-3198.

Flight Jacket, Northrop orange, lge., $18. 213-391-5046.

Tape Deck, Concord, stereo, $70. 213-383-2887.

End Tables, 2 matching French Provincial, $20 ea. 213-534-2951.

Movie Camera, Bell & Howell Super 8, w/ projector & screen, $100. 213-327-8357.

Motorcycle, Triumph 1966 650 Bonneville, recent eng. o/haul, 8″ o/stock, $850. 213-679-6192.

Painting, Golden Surf, repro. of seascape by Robert Wood, walnut edge frame, 29 x 65″, $10. 213-377-5362.

Acreage, 2½ acres, edge of Apple Valley, terms, exc. rec./retirement, pwr. & phone, utils., $5,995. 213-325-5609.

Mobile Home, Hillcrest, 20 x 53, 2-bdrm., 2 baths, family rm., porch & awnings, Brea area, $12,900. 714-529-8195.

Lot, Canyon Lake, near Elsinore, 60 x 195, club membership for boating, swimming, small dn., $6,950. 714-734-0543.

Used Bricks, approx. 200 & cement blocks, 10¢ ea. 213-376-4831.

Motorcycle, 1967 Hodaka, Ace 90, just rebit., $225. 213-377-8547.

Boat, 14′ Runabout, 40 h.p. motor, trailer, elec. start., $375. 213-324-8853.

Houseboat, 12 x 34, on Lake Mead, bltins., f/place, self-contained, sleeps 6, many extras, $6,000. 213-634-5978.

Ski Boots, women's Koflack, size 6½, $20. 213-372-7958.

Dressers, Simmons white provincial, girl's, $60 ea. 213-326-3136.

Dining Room Set, mahogany, 4 chairs, round table, 2 exp. leaves, glass front buffet, $175. 213-675-4239.

Piano, restyled upright, formica covered, $150. 213-941-3804.

House, 2-bdrm., $2,300 dn., Hawthorne High area, $23,000. 213-375-5009.

Table Saw, Sears Craftsman, 8″ small ext. table, 2 blades, $75. 714-535-4864.

Divan, 3-pc. sect., L shape, $85. 213-323-8797.

Sleeper, sofa, twin size, $85. 213-320-6887.

Pups, pug male & female, AKC reg., 6 wks. old, $125 ea. 213-926-7624.

Surfboard, 8′10″ Greg Noll, $20. 213-378-2790.

Tires, 4 6.45 - 14, $22. 213-534-4068.

Auto Air Conditioner, fits Chrysler, $85. 213-672-2370.

Lot, Lytle Creek Canyon, R-1, $2,800. 213-675-3100.

Exhaust System, stock, for 1971 VW bus/ camper, used 15,000 miles, $10. 213-421-2121.

Bicycle, girl's 10-spd., $65. 213-392-1447.

Chandelier, 18″ Spanish-type black wrought iron, $15. 213-378-6415.

Miscellaneous For Sale

Clothes Dryer, G.E., $80. 213-530-3666.

Sliding Glass Doors, 16′, 4′ panels, 2 fixed, 2 center slide 3/16 hvy. glass, $300. 213-676-7213.

Buffet, 60″ long, blond h/wood, $75. 213-375-3790.

Sofa Bed, $25. 213-679-5177.

Slide Projector, Bell & Howell 135 mm, 9 mos. old, $40. 213-326-0340.

Cassette, car stereo, player, recorder, 8 tapes, 2 spkrs., 6 mos. old, $85. 213-291-6075.

Jointer, Craftsman, 6″, motor & stand, $85. 714-523-8414.

TV, Admiral, b & w, 17″ table mod. $10. 213-377-4623.

House, corner, 2 yrs. old, 2-story, 4-bdrm., 2 baths, f/place, F.A. heat, bltins., dps., Cerritos, $32,500. 213-860-3022.

Acreage, 2½ acres, Antelope Valley, E. side, water & elect. to prop. cor., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Airline Ticket, to Japan, leave Sept. 30, Unitour, $208. 805-482-7263.

Lawnmower, Blair hand-type, $15. 213-370-0824.

Houses, 2 & 3-bdrm., on 1 lot, near Harbor Fwy., $24,000. 213-329-2242.

Travel Trailer, 18½′ Prowler, cpts., self-contained, $2,100. 213-324-3066.

Boat, 1970 16′ Chrysler i/o, complete w/ trailer, less than 10 hrs. on eng. & hull, $2,000. 213-326-4157.

End Tables, walnut, $10 ea. 213-541-3000.

Arc Welder, Craftsman, 50-75-100 amp o/put, 230 v. 20 amp input w/32′ hd. 3-wire cable, other access., $70. 213-377-9723.

TV, Sears Silvertone, color, 21″ table mod., 2 yrs. old, $200. 213-832-3857.

Drafting Machine, Post 24″, $50. 213-675-5258.

Rug Shampooer, Shetland-Lewyt, & floor polisher, $20. 213-644-3922.

Motorcycle, 1972 Yamaha 100, 1,000 act. mi., under warranty, $450. 213-889-8723.

Cassette Tape Player, Panasonic, w/carrying case, 6 mos. old, $25. 213-674-1400.

Trumpet, King, case, $75. 213-373-4298.

Boat, 10′, fiberglass, 5 h.p. motor, and oars, $150. 213-671-1660.

Stereo, AM-FM, w/record player & tape deck, G.E. dk. pecan contemp., $250. 213-347-4196.

Exercise Machine, comb. rowing/bicycle, $20. 213-326-5731.

Beds, twin, white h/boards, spring & mattress, $25 ea. 213-675-6081.

Motorcycle, Honda 350CB, street, $595. 714-879-2569, 714-533-7246.

Boat, 16′ Glasspar, 60 h.p. Merc., 5 h.p. John., big whl. trailer, $650. 213-670-2098.

Washer & dryer, Sears Lady Kenmore, $60 set, other items. 213-866-3847.

Wheels, 5 safety rim, for Ford ½-ton pickup, fit 7.00x15 tires, $125. 213-644-2941.

Movie Camera, 8 mm Yashica U, zoom reflex 37.5 mm lens, elec. eye, $35. 714-523-5315.

Crib, mattress, $20, other items. 714-536-9929.

Piano, Baldwin Acrosonic spinet, $500. 213-894-1381.

Ski Boat, 16′ glass o/wood, trailer, eng. needs work, $200. 213-423-1363.

Wanted to Buy

Answer Phone System, $50-$100. 213-545--2166.

Dinette Set, bicycle, girl's, convt. sofa. 213-379-4517.

Skis, Kastle, La Feme, 180 or 185. 714-528-5461.

For Trade

Mint (proof) silver dollar, 1972, trade for 1971 mint (proof) silver dollar, must be in orig. sealed container. 213-675-2005.

Free (To Be Given Away)

Logs for fireplace. 213-939-8053.

Dog, purebred Dachshund, female, spayed. 714-847-5938.

Dog, German shorthair pointer, 18 mos. old, female, needs lge. yd. 213-375-8148.

Pups, cockapoo, 6 wks. old. 213-921-5745.

Baby Guinea Pigs. 213-370-0484.

Rentals Offered

Cabin, near Arrowhead & Running Springs, sleeps 4 or 5, $35 wkend, $95 wk. 213-370-7105.

Cabin, Big Bear, on golf course, sleeps 12, $40 wkend, $100 wk. 714-595-3968.

Rentals Offered

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, $125 1 wk., $200 2 wks. 213-375-2255.

Apt, 1-bdrm., unfurn., in Redondo Bch., cpts., dps., bltins., gar., $150. 213-831-0453.

Condominium, Palm Springs area, furn., 2-bdrm., pool, $100 wk., $60 wkend. 213-327-8994.

Mountain Home, Big Bear City, 2-bdrm., bath, f/place, furn., $35 wkend, $100 wk. 213-823-1788.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40 wkend, $70-$90 wk. 213-868-8040.

House, on 5 acres, Big Bear Lake, 2-bdrm., f/place, furn., sleeps 8, $100 wk., $45 wkend. 213-325-8267.

Cabin, Lake Arrowhead, family only, $125 wk., $55 wkend. 213-831-1745.

Apt., 3-bdrm., 2 baths, cpts., dps., bltin stove, laundry facilities, walk to Northrop, $200 mo. 213-674-1400.

Cabin, Moonridge, 3-bdrm., 2 baths, kit. utens., f/place, family only, $125 wk., $50 wkend. 213-326-7232.

Apt., 1-bdrm., furn. $120, unfurn. $110. 213-676-4734.

Mature Woman to share home w/same, 2 miles from Northrop, $90 mo. 213-329-6728.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

House, 2-bdrm., lge. fenced back yard, gar., cpts., dps., $175. 213-675-8739.

Need working girl to share lge. house, walking distance to Hermosa Bch., pet o.k., share utils., $75 mo. 213-379-4641.

Apt., 3-bdrm., 3 baths, sub. gar., adult bldg., Inglewood, $350. 213-670-6084.

Cabins, Big Bear Lake, completely furn., $18 day, $90 wk. 714-866-2548.

Rentals Wanted

House or apt., 2-bdrm., w/yard, close to work, 3 people & 5 mos. old infant, $150-$175. 213-371-8768.

Personals

My heartfelt thanks to the many Northrop friends who responded to the news of my wife Lula's illness and death. MARVIN W. SCHNEIDER

I wish to thank each & every one for the kind remembrances upon my retirement. CLIFFORD H. DILTZ

We wish to express our sincere appreciation for the kind expressions of sympathy regarding the loss of our son. TONY & LESSIE SPECIALE

I wish to extend my sincere appreciation & thanks to all my friends for their thoughtful gifts & kind wishes upon my retirement. JOSEPH L. STEVENSON

I wish to thank all my Northrop friends for their kind thoughts during my recent illness. JAMES WORTHAM

Many thanks to all my friends & co-workers for a happy retirement party. BARNEY ELLIOTT & FAMILY

I wish to express my thanks for the kindness shown to me during my recent confinement in the hospital. KAROLL SHURTZ

To all my wonderful friends at Northrop, thank you for the great retirement party & gifts. GLENN S. CRAYK.

We wish to express our thanks for the flowers & expressions of sympathy in the passing of our husband & father, Newt Cook. SARAH & ED COOK.

Thanks for making an interesting summer enjoyable. I value the experience of working with you, & I wish you a prosperous and satisfying future. TONY KALAS.

For Sale or Trade

Acreage, 2½ acres, Lancaster near Fox Airport, $8,995 or trade for 4-whl. dr. vehicle, plus cash. 213-645-2711.

NORTHROP NEWS

Vol. 30 **No. 9**

Published monthly by Northrop Corporation Employee Communications.

Managing Editor, Rosemary Hussey; Editor: Ivy Edmonds, Electro-Mechanical Division; Correspondents: Marian Robinson, Ventura Division; Dale Albee, Architectural Systems; Peter Goodall, Precision Products Department.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 W. Broadway, Hawthorne, Calif. 90250. Telephone: (213) 675-4611, ext. 4273.

Vultee Club Reunion Set

The Vultee Aircraft Club will celebrate its silver reunion at the Garden Grove Elks Club, 1151 Trask Avenue, Garden Grove, on Saturday, Oct. 7, it has been announced by Sandy Sandstrom, Electronics Division.

The club, which was formed in 1947, is composed of more than 1,000 former employees of the Vultee Aircraft Company.

The affair gets under way with cocktails at 5:30 p.m. and dinner at 7:30. Cost is $6 per person.

Reservations, which should be made no later than Sept. 23, are being handled by Mr. Sandstrom at the Hawthorne facility on ext. 227 or mailed directly to the club: The Vultee Club, P.O. Box 174, Downey, Calif. 90241.

NRC Tennis Club Needs Members

Many Northrop employees have expressed interest in activating the NRC Tennis Club, according to Hollis Smith, tennis commissioner.

If there are sufficient players after rebuilding the tennis ladder and a round robin tournament is held, the club can schedule various events in which members may participate.

Of these events would be the South Bay Tennis Winter League program in October. Others are the re-establishment of membership in the Industrial Tennis League, a series of tennis clinics for beginners and novices, the National Junior Public Parks Tennis Championship and the National Public Parks Tennis Championship for advanced players.

Contact Mr. Smith on ext. 613 at the Hawthorne facility for additional information.

TOASTMASTERS

Northrop Toastmasters Club 212 will hold its annual Speechcraft course starting Sept. 27 at the Pen & Quill Restaurant, 3501 N. Sepulveda.

Each session will start at 6:30 p.m. for eight consecutive Wednesdays and will cover different aspects of speech preparation, speaking and listening. The cost of the course is $10 and includes all materials required.

Hank Greenberger is speechcraft coordinator and Earle Miller is in charge of publicity. Vern Beckner, Aircraft Division, is in charge of speaking arrangements.

Highlights Of NRC Family Picnic

MANY PLAYED GAMES HOPING TO WIN SOME PRIZES

GETTING NAME TAGS

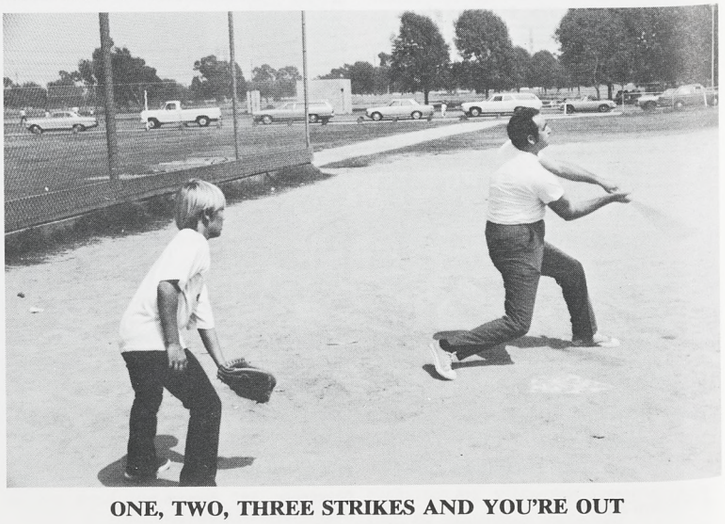
MAY I HAVE A SIP

WE'RE GOING TO WIN

Photos by Jeanne Saxon and Frank McGinley

HOPPING AROUND IN A SACK IS NOT EASY, BUT IT IS FUN

U-M-M! SMELLS GOOD



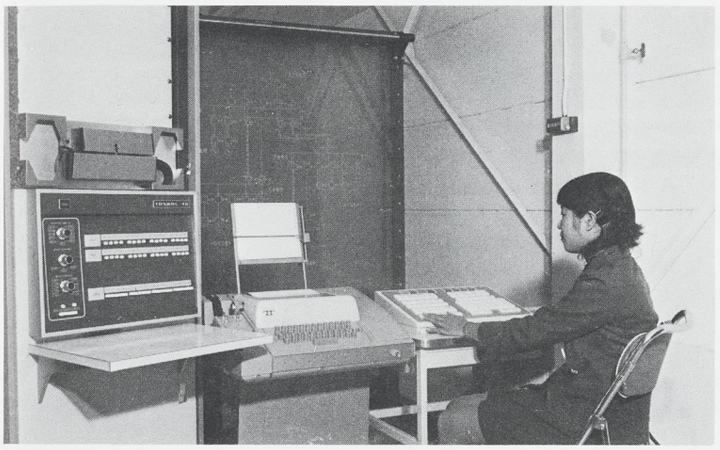
ONE, TWO, THREE STRIKES AND YOU'RE OUT

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 10 | October 1972

Division Ahead of Plan—Future Brighter



VIGICONS ARE IN JAPAN . . . This Northrop-built system is now being used by Tokyo Shibaura Electric in a proposed tactical data processing system.

IN JAPAN

High Marks for Vigicon

Northrop's Vigicon, developed by the Electronics Division, is winning high marks in evaluations being conducted by the Japanese Navy and Army.

The authoritative Japanese aviation Report-Weekly reported recently that Vigicon had been selected for the real-time, multicolor screen display system for the Japanese Navy's new tactical data processing system.

The Vigicon system developed by the division is a multiple projector system which receives data from many sources and projects the information onto a large viewing screen as the action occurs.

Unique Optical System

The unique optical system is currently operational at a number of military, space and government activities.

The newsletter reported Vigicon tentatively had been selected because of the "excellent performance" of two units already operational with the Navy and one unit is in use by Tokyo Shibaura Electric (Toshiba) for development of the Army's mobile automatic data processing system.

If ordered for the new tactical data system, the Vigicon systems will be produced by Hokushin Electric Works Ltd., of Tokyo under a licensing agreement with the Electronics Division.

CHRISTMAS PARTY TO BE HELD DEC. 10

The big NRC Children's Christmas Party is set for Sunday, Dec. 10, according to Ed Sterbenz, Special Events chairman.

The big holiday fun show for Aircraft and Electronics Division personnel and their dependents will again be in the Shrine Auditorium. The first show will be at 12 noon and the second show at 4 p.m.

There will be free parking as usual.

"Applications for reservations will be issued with paychecks on Friday, Nov. 3," Mr. Sterbenz said. "They must be filled in and returned to Personnel Activities by Friday, Nov. 17.

"These requests for reservations, children's gift, admission and parking tickets will be processed by the NRC Special Events Committee on Sat., Nov. 18. They will be mailed in ample time for the party."

Ferguson Report Optimistic on Business Outlook for Next Year

The Electronics Division is exceeding its plan for sales and earnings in 1972, and the outlook for next year is even brighter.

This was the report delivered by Vice President and General Manager David N. Ferguson at the recent annual Northrop Management Conference. Progress in nearly every category of business was reported by Mr. Ferguson.

"I am very optimistic concerning our prospects for even more business," Mr. Ferguson told the Northrop News. "When Ross Miller was named president of Page Communications Engineers-Iran, and I succeeded him as general manager of the Electronics Division, I found an exceptionally strong organization equipped with tremendous capabilities. I'm certain these capabilities represent the source of even a brighter future for the Electronics Division.

"Just as important as our numerous capabilities is the attitude of Electronics Division men and women toward achieving performance goals," Mr. Ferguson declared. "The Electronics Division is earning a coveted reputation for 'doing what we say we are going to do.' To each of you who contributed to our good performance in the current year, I extend my warmest appreciation. Everything points to even better performance in 1973, and I am looking forward to working with you in achieving these new goals.

Other Contributions

"Our performance on the C-5 program, both technically and from the standpoint of cost control, has been exceptional and has been an important factor in our over-all performance, but dozens of other programs have contributed significantly also.

"We also are exceeding our goals in new business acquisitions for 1972, which should be about 20 per cent over 1971. We expect to see further increase, not necessarily at the same rate, in 1973."

Referring to activities of departments and subsidiaries, Mr. Ferguson stated:

"Our Avionics Department continues to show progress in the design, development and production of new navigation systems. Our successful work continues with the SR-71 and C-5A systems. Our work with the Omega systems looks extremely promising, and we are finding new applications for the Omega concept.

"In Tactical Aircraft Avionics we are continuing our work on the Harrier program and are increasing the level of our support to the Aircraft Division.

"In Reconnaissance Data Links we are completing our developmental work on JIFDATS with the expectation that this will lead

(See FERGUSON, page 6)

Mr. Ferguson

DINNER DANCE

The Queen Mary in Long Beach will be the site of the annual Management Club Dinner Dance, Sat., Nov. 18, according to Gary Lewis, president.

Tickets are now on sale for an entertainment program featuring comedy, juggling and musical specialty acts, with music for dancing by the Newporters Orchestra.

Cocktails will be served in the Queen Mary Museum starting at 6 p.m. with dinner at 7:30.

Shops and promenade decks will be open and attendance is expected to be the largest in the history of the club.

Japan's F-5 Decision

Has No Effect on Business, Employment

(Editor's note: The following was issued by Northrop in response to the recent news announcement regarding Japan's defense procurement plans.)

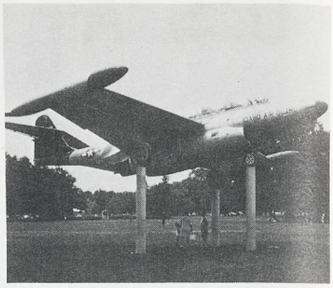
"The recent announcement by the Japanese Government not to buy F-5 aircraft will have no effect whatsoever on employment or business at Northrop. While the Japanese Air Self Defense Agency for several years has shown a continuing interest in acquisition of F-5 aircraft, Northrop itself has never considered any Japanese acquisition a serious possibility.

"It has long been known that the Japanese desire to build up its own aircraft manufacturing industry has been a number one priority. Consequently, any potential Japanese purchase of F-5s was never included in any of the company's business forecasts.

"To date, Northrop has firm orders from the U.S. Government and other Free World nations for the purchase of more than 300 F-5E aircraft. The company expects total F-5E sales to easily surpass the 650 mark and possibly exceed 1,000. At a unit price of $1.6 million, total F-5E aircraft sales over the life of the program could have more than a $1.5 billion impact on the U.S. balance of trade. Ground support equipment, spares and other related equipment could make the total impact of the program considerably higher.

"As Northrop pointed out at the time of the F-5E rollout, the International Fighter program is expected to result in more than 12,000 additional aerospace industry and support jobs in the state of California alone. The recent Japanese Defense decision does not have any effect on either the company's sales or employment projections."

A Northrop spokesman pointed out that the 300 firm orders for the F-5E at the time of the aircraft's first flight was "unprecedented in recent U.S. military aircraft history."



"JUST LIKE OLD TIMES," writes Northrop retiree David Stadler, enclosing this picture of the F-89 Scorpion he took in a city park in Nampa, Idaho. Mr. Stadler, who was manager of Personnel, retired in 1964. The Scorpion was one of the planes Northrop built during his 22 years years with the company.

NADC To Study Louisiana Airport Plan

Northrop Airport Development Corporation (NADC), has been selected to help develop an airport systems plan for the state of Louisiana, including a study of whether there should be a new regional airport to serve both New Orleans and Baton Rouge.

The Federal Aviation Administration has approved a $296,725 grant to the state of Louisiana, under the planning grant program set up in the 1970 Airport and Airway Development Act. Total cost of the study will be $445,088.

Louisiana Gov. Edwin W. Edwards appointed Henry G. Grimball, Metairie, La., architect, as coordinator-planner for the program and Mr. Grimball selected NADC to assist in developing aviation elements of the plan. NADC is a wholly owned subsidiary of Northrop Corporation.

The governor said the purpose of the statewide study will be to "insure effective location and development of airports and to encourage maximum potential growth for the economic well-being of the citizens of the state of Louisiana."

The study will determine the extent, type, general location, and timing of airport development needed in the state. A separate part of the study will be concerned with whether New Orleans and Baton Rouge should be served by a large regional airport in the future. This phase of the study will be completed within 60 days.

NO, THE F-5E IS NOT getting a traffic ticket. The Los Angeles Police Department patrol car is helping direct traffic past the Tiger II as the new plane is trucked past Los Angeles City Hall on its way to Edwards AFB where the International Fighter made its maiden flight August 11. (Photo by Jim Haddow)

ZONTA AWARDS

Zonta International, a service organization of executive women in business and the professions, has announced the Amelia Earhart Fellowship Awards to women for advanced study and research in the aerospace sciences. The $3,000 grants will be awarded to best qualified candidates for assistance in the 1973-74 school year.

Applications must be filed by Jan. 1, 1973. Candidates or instructors wishing to recommend students, should write to: Zonta International, 59 E. Van Buren St., Chicago, Ill. 60605.

COUNCIL PRESIDENT

Thomas V. Jones, Northrop president and board chairman, has been elected president of the Los Angeles World Affairs Council.

Mr. Jones succeeds Roy L. Ash, president of Litton Industries, who completed two successive one-year terms as council president.

Other officers selected to lead the council for the next 12 months are John V. Vaughn, vice president and treasurer; William H. Burgess, Lloyd N. Hand, Henry T. Mudd, and William French Smith, vice presidents; Mrs. Herbert Nootbaar, secretary; and J. Patrick Garner, executive director.

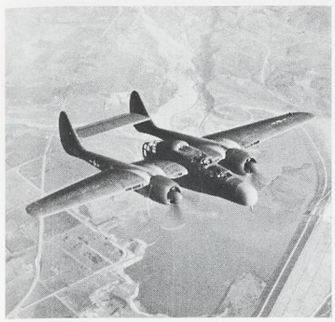
Northrop Credit Union Announces Policy Changes

Once a member, always a member, makes it possible for all members, once qualified, to continue to use the services offered by the Northrop Credit Union. This is one of the changes to credit union policies announced by R. A. Lindsey, president of the Credit Union board of directors.

This change does not alter continued membership privileges previously extended to Northrop retirees. Also, former employee members and existing family accounts may continue their membership if they maintain a share account of $5 or more.

In the event that this requirement is not met, their account will be closed after the end of the next dividend period. The dividend period ends Nov. 30 and is paid in January. Those with loans will be kept open until the loans are paid.

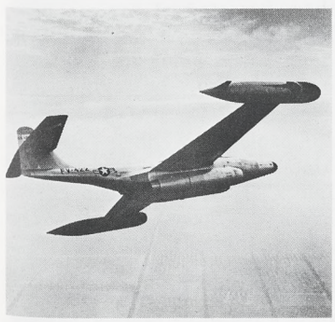
U. S. Air Force Celebrates 25th Anniversary



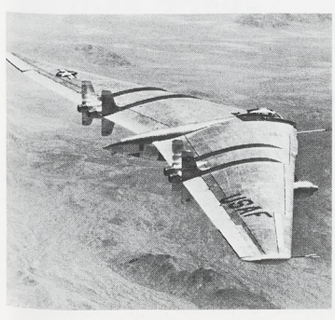
P-61 BLACK WIDOW

X-4 FLYING LAB

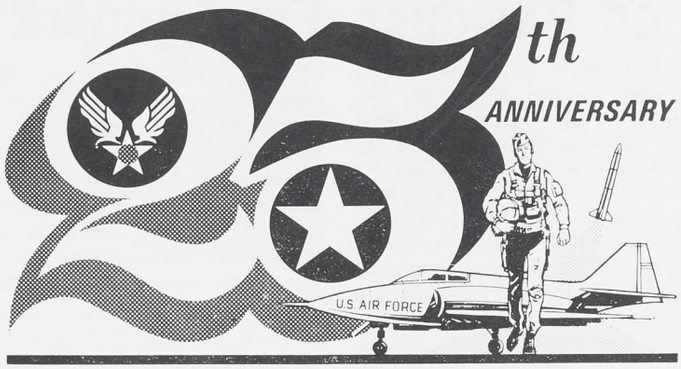
C-125 RAIDER



F-89 SCORPION



YB-49 FLYING WING



UNITED STATES AIR FORCE

PRIDE IN THE PAST - FAITH IN THE FUTURE

Northrop Has Been AF's Partner for 25 Years

When the United States Air Force celebrated its Silver Anniversary in September, Northrop Corporation also celebrated its own 25th Anniversary as a partner of the Air Force in its vital role in the defense of the Free World.

The United States Air Force officially began on Sept. 18, 1947, when Chief Justice Fred M. Vinson administered the oath of office to the first Secretary of the Air Force, W. Stuart Symington.

At this time Northrop was very much a part of the nation's military aviation activities. The P-61 Black Widow, the first airplane built exclusively for night fighting, was still in the military inventory. The experimental XP-56, MX-324 Rocket Wing, the XP-79 Flying Ram, and the dramatic B-35 Flying Wing were pushing back the frontiers of flight, paving the way for the coming jet age. The Northrop F-15 Reporter, a reconnaissance version of the Black Widow, and the N-23 Pioneer, a husky, short-field transport, were also serving the new Air Force.

In the critical years that followed, Northrop supported the Air Force with the X-4—a miniature flying laboratory; the F-89 Scorpion, first twin-jet, all-weather interceptor; and the C-125 Raider, three-engine transport for airborne assault and rescue aircraft.

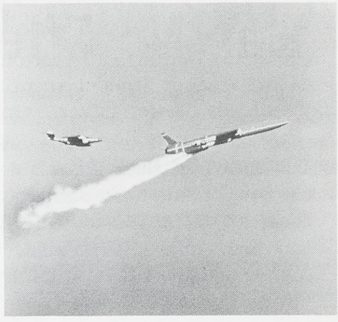
Northrop then joined the Air Force in moving into the missile age with the SM-62 Snark, the first intercontinental guided missile. The highly successful Snark program was followed by the T-38, the Air Force's first supersonic jet trainer which introduced a new era of pilot training. Then the F-5 became the first U.S. fighter aircraft designed for Military Assistance Program countries.

Next Northrop program for the Air Force was the X-21A Laminar Flow Control test aircraft which demonstrated Northrop's laminar flow system which reduced turbulence and increased range of long range aircraft by as much as 75 per cent.

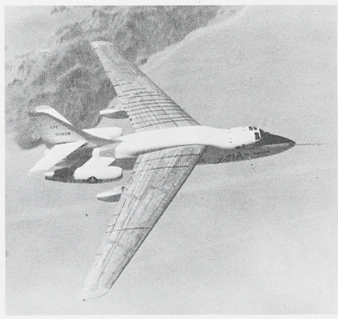
Today, as the Air Force flies into its second quarter century in the defense of the nation, Northrop is still very much a part of the team that keeps these defenses strong.

The Northrop Lightweight Fighter and the A9-A close support aircraft are being built for a competitive fly-off with General Dynamics and Fairchild.

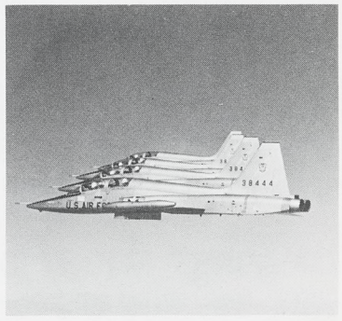
The Lightweight Fighter is designated the P-600. It is a twin-engine, high-performance aircraft powered by two General Electric YJ101 turbojet engines. The A-9A aircraft is a rugged twin-engine, single-place aircraft with short takeoff and landing capabilities. It carries varied payloads and is capable of long loiter time over target areas.



SM-62 SNARK

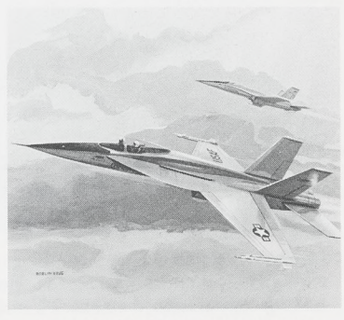


X-21A LAMINAR FLOW



T-38 TALON

A-9A CLOSE SUPPORT



LIGHTWEIGHT FIGHTER

Exchange Student Spends A Day With 'Foster Father'

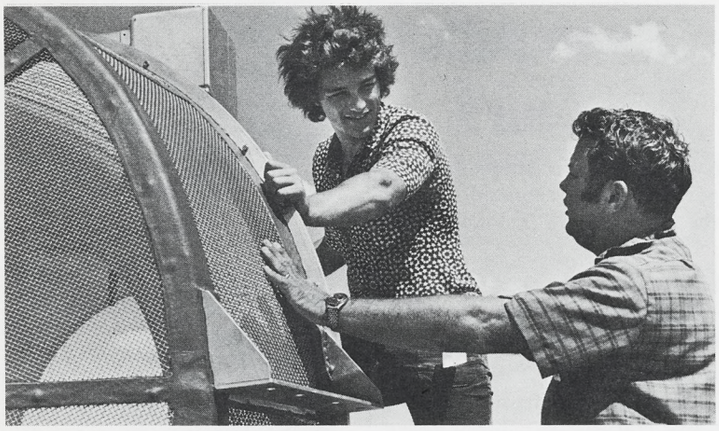
Christian Guitton, a 17-year-old French Exchange Student, spent a day with his "foster father," Ora A. Patton, learning how Northrop tests engines for the F-5E.

Christian came from Thouras, France, to attend Palmdale High School as a senior under a student exchange program sponsored by the American Field Service.

The American Field Service is devoted to improving the relationships, understanding and communication between the United States and foreign countries. It is a private organization supported by donations and community work projects.

Christian will live with Mr. Patton, his wife Bobylea and their four children during his year in the United States. As the "get acquainted with America" part of the program, he spent a day with Mr. Patton on the job at Northrop.

Mr. Patton is an experimental flight test crew chief with the Engine Runup section at the Aircraft Division's facility at Edwards Air Force Base, and Christian watched runup tests on the J85-21 engine for the new Northrop F-5E.



ORA PATTON, RIGHT, shows exchange student Christian Guitton how Northrop tests the J85-21 engine for the F-5E.

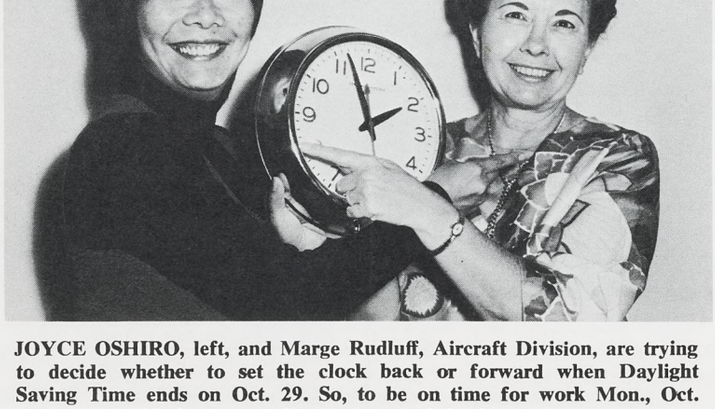
FIRST FLIGHT COVERS AVAILABLE

The NRC Stamp Club has flight covers of the F-5E Tiger II first flight on sale at Aircraft Division Personnel Activities.

The covers were placed aboard the F-5E on its maiden flight at Edwards AFB in August. The envelopes have an imprinted cachet, which is a photograph of the aircraft in flight, and bear an 11-cent air mail stamp cancelled at Edwards. Statistical data inserts are part of the package.

The covers are 35 cents each or three for $1 on a first come, first served basis.

Fact inserts on the A-9A are available for those who purchased that previously issued first flight cover.



JOYCE OSHIRO, left, and Marge Rudluff, Aircraft Division, are trying to decide whether to set the clock back or forward when Daylight Saving Time ends on Oct. 29. So, to be on time for work Mon., Oct. 30, be sure and set your clock back one hour.

THE MAJKAS ON THEIR 1,000-MILE AFRICAN TOUR.

DO-IT-YOURSELF SAFARI

Hard Way to See Africa

Matt Majka, Electro-Mechanical Division and his family saw Africa the hard way—in a do-it-yourself safari.

As part of a round-the-world trip they rented a VW bus in Nairobi, Kenya, and started trekking through the wilds without guides and with only a vague idea of where they were going.

"The first I realized we might be undertaking something foolish," he recalled, "was when I told the man who rented us the bus where we were heading. He gave me a thoughtful look and turned to his assistant. 'Better throw in some extra spares,' he said."

He thought they could just follow the roads. The roads proved to be deep rutted dirt that dwindled to nothing in places. At one point all he could find was a single set of tracks cutting across an area of thick grass.

"On the way we almost ran over a lioness with some cubs. She wasn't happy with us at all, and said so with an angry roar. While we went through five national parks and game preserves, we saw more animals outside the preserves than inside," he said.

They went north toward Mount Kenya and then circled back, crossing the equator twice, to Kilimanjaro. The entire route covered 1,000 miles. During this time they passed through only four towns.

"You are really on your own in the back country," Matt said. "If you get lost, that's your tough luck. For stretches of at least 60 to a 100 miles, we saw no people, only animals."

Once they did get lost. He kept driving around until he saw some mud huts with thatch roofs. They were Kenya back country Masai warriors and none could speak English. From here they kept driving with no idea where they were going or where they were, until they met a British hunter. He looked and sounded like something out of a movie, but he knew the country and was able to get them on the right road.

Bad Roads

Their greatest difficulty was climbing the mountains. In addition to bad roads, the engine of their bus starved for air in the high altitudes. "I thought several times I was going to have to get out and push," he said.

Matt and Faye Majka were accompanied by their daughter, Marsha, and her husband, Bill Lueck. Their entire trip covered Portugal, Spain, Italy, Greece, Africa, Ethiopia, Bangkok, Singapore, Australia, and Hong Kong, but of it all they remember best their 1,000-mile do-it-yourself safari in Africa.

HAWAIIAN HOLIDAY

The Northrop Travel Club has scheduled a meeting for tomorrow evening, Oct. 19 at 7:30 p.m. in the Plant Three cafeteria to discuss the yearend holiday trip to Hawaii, it has been announced by Jeanne Andrecht, Travel Club commissioner.

The club tour departs Dec. 23 and returns Jan. 1. During the 10-day period they will visit four islands. The cost is $376.

A $50 per person deposit is required with the balance due by Dec. 6.

SPACE FAIR

The thirteenth annual Space Fair will be held at Point Mugu Oct. 21, 22, and 23, according to Navy Space Fair officials.

Center of the activity will be a 40-acre midway featuring exhibits covering all facets of aerospace programs in the United States today, including a moon rock and many of the nation's newest and fastest aircraft.

Admission is free.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Volkswagen, 1968 squareback, r/h, $1,050. 213-375-9397, 213-375-2091.

Volkswagen, 1968 Fastback, $900. 213-763-7128.

Volkswagen, T Body, fiberglass, new tires & top, ap.p. whls., $1,500. 213-328-7534.

Volkswagen Camper, 1972 Westphalia, 16,000 mi., radio, $3,450. 213-375-3632.

Chevrolet Van, 1967, new eng., $1,200. 213-679-8397.

Ford, 1971 LTD Brougham, 17,500 mi., AM-FM stereo, a/c, p/s, p/b, $3,300. 213-926-7624.

Pinto, 1972 Runabout, many extras, $2,150. 714-827-2908.

Corvette, 1966 Stingray Fastback, 427 cu. in., new eng., p/w, p/b, 4-spd., $1,900. 213-896-9369.

Fiat, 1971, $1,350. Box 1001.

Ford, 1968 Bronco, 4-whl. drive, C.B. radio, $2,100. 213-881-4753.

Rambler, 1960 American, auto. trans., 6, $150. 213-329-2330.

Dune Buggy, Corvair pwr., auto. trans., extra eng., trans. & transaxle, $500. 213-928-3237.

Motorhome, 20' Pride-N-Joy, on 1972 Dodge chassis, self-contained, sleeps 6, auto. trans., p/s, p/b, a/c, $9,675. 213-679-0710.

Truck, 1968 Chev., 8' o/cab camper, 27,000 mi., a/c, p/b, p/s, r/h, 6-ply tires, $2,795. 213-676-5219.

El Camino, 1959, $550. 213-676-0935.

Station Wagon, 1972 Gran Torino, a/c, p/b, p/s, $3,500. 213-382-5575.

Chevrolet, 1968 Impala SS, all power, a/c, $1,300. 213-372-1778.

Dodge Dart, 1966, $650. 213-679-3275.

Toyota, 1970 Corona, auto., a/c, 50,000 mi., $1,550. 714-892-7174.

Chevrolet, 1965 Supersport, auto., console, p/s, p/b, r/h, $500. 213-679-3889.

Pontiac, 1967 GTO, a/c, 8-track, $1,600. 213-377-6658.

Chevrolet, 1966 van, camper equipped, bed, ice box, AM-FM radio, $1,150. 213-670-5486.

Volkswagen, 1963 delux camper van, 1500 eng., side tent, ice box, sunroof, $1,150. 213-391-5046.

MG Midget, 1968, h/top, wire whls., heater, tonneau, $1,000. 213-672-8490.

T-Bird, $1,500. 213-677-8410.

Dune Buggy, 1972 Corvair pwrd., new tires & top, st. licensed, $1,000. 213-831-0057.

Street Buggy, full length VW, f/glass body, h/top, $900. 213-645-3381.

Station Wagon, 1969 Caprice Kingswood Estate, $2,250. 805-498-2721.

Austin America, 1969, 4-spd. auto., $690. 213-644-1690.

Miscellaneous For Sale

Corvette 3rd Member, 4.56 positraction, $80. 213-341-5807.

Ranch, 20 acres, w/house, 4-car gar. at Reedley, Calif., mile from Kings River, hr. from Sequoia Nat'l. Pk., $32,000. 213-674-5953.

Gun, P38, 9MM, 1943 by Mauser, matching s/n & parts number, $125. 213-676-5787.

Bicycle, 20" wheels, incl. training whls., $10. 213-675-6397.

House, 3-bdrm., den, 1¾ baths, cpts., dps., landscaped, 5% or 10% dn., Holly Park area, $29,950. 213-321-9658.

Wheels, split rim, 5, for ½ ton Ford pickup, fit 7.00x15 tires, $125. 213-644-2941.

Coffee Table, w/2 end tables, rectangular no-mar, $50. 213-374-7625.

TV, RCA color, console, $150. 213-866-4104.

Mobile Home, 20x57½ Royal Lancer, adult park, Torrance area, $12,750. 213-830-5024.

Table, maple, 40" dia., $10. 213-376-4831.

Mobile Home, 10'x46' w/30' add on, cpts., bltins, $5,500. 213-534-3968.

Bar, 8', maple, 4 stools, $450. 213-679-6782.

Boat, 15' Wizard fbr. gls., 35 h.p. Merc. Thunderbolt ign., trailer & access., $600. 213-324-1908.

Tape Recorder, Akai Roberts M-7, 4-track stereo, $150. 213-645-6494.

Miscellaneous For Sale

Humidifier, $50. 213-677-0518.

Houses, 2 2-bdrm., frame stucco on lge. 60x150 R-3 lot, in Harbor City, fenced ind. yds., gars., $36,500. 213-326-5566.

Air Conditioner, window-type, Westinghouse, 14,000 B.T.U., 110 V.A.C., used less than 3 mos., $160. 213-531-3872.

Trailer, for hauling motorcycles, $25. 213-671-0357.

Patio Table, 4 benches 42" square, redwood, $15. 213-530-3432.

Piano, Howard spinet, walnut, $500. 714-826-2094.

Motorcycle, 1966 Honda Super Hawk, 32 h.p. 338 cc, $175. 213-547-4141.

Knife, elec., Hamilton Beach, $5. 213-370-5031.

Shotgun, 20 ga., w/choke, bolt action, Mossburg, $40. 213-644-3125.

Mini-Bike, 1971 Flexo Big Bear Scrambler, 3 h.p., $100. 213-322-6203.

Motorcycle, 1970 Honda 350, custom forks, many extras, $650. 213-670-2098.

Cornet, Olds, $75. 213-325-1190.

House, lge. 2-bdrm. & family rm., cor. lot, $31,900. 213-675-4597.

Air Brush Outfit, Thayer Chandler Mod. A brush, CO2 tank, reg., hose, $35. 213-599-7009.

Dog, St. Bernard, female, AKC, 10 mos. old, shots, $100. 213-834-1812.

Air Conditioner, Rheem, 5-ton, 2 blowers, condenser & venting, $800. 213-679-3739.

Piano, Starr, upright grand, $200. 213-371-2129.

TV, b&w console, 21", $59. 213-325-5245.

Sewing Machine, portable, $35. 213-677-7421.

End Tables, walnut, $10 ea. 213-541-3000.

Pups, Springer Spaniel, AKC, $75. 213-370-9558.

Tires, tubeless, 4, 13" rim, $20. 213-831-5304.

Motorcycle, 1972 Yamaha, 100 Enduro, under 50 mi., $395. 714-925-7365.

Bicycle, 10-spd., w/generator, 6 mos. old, $55. 213-325-8932.

Boat, 16' Utility, 35 h.p. Evinrude, lge. wheel trailer, $400. 213-379-5592.

Home, Hermosa Bch., w/upstairs bdrms., rear gar., basement, other items, $36,900, Box 1002.

Cassette Car Stereo, player, recorder, 8 tapes, 2 spkrs., $75. 213-291-6075.

Motorcycle, 1972 Harley-Davidson Sportster, semi-custom, 1,500 mi., $1,800. 213-530-5076.

Drafting Machine, Bruning 2700 w/Dazor lamp, $80. 213-677-6204.

Dryer, elec. G.E. Delux, $65. 213-530-3666.

Bicycle, 26" 3-spd., drop handle bars, other access., $35. 213-542-6716.

Storage Cabinet, sheet metal w/5 shelves, 8'h.x3'w.x2' deep, $25. 213-323-3528.

Acreage, 2½ acres, Antelope Valley, water & elec. to prop. cor., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Motorcycle Trailer, hvy. duty, hauls 3 bikes, $100. 213-323-2358.

Voltmeter, vacuum tube-type, RCA Senior volt ohmyst w/probes, $25. 213-363-2630.

Surfboard, 6'10", $50. 213-374-8608.

Dining Room Chairs, 6, $54. 213-860-3022.

Couch, 7', brown, $50. 213-377-5935.

Travel Trailer, 26', 1969 Monitor, Eastern coach, self-contained, sleeps 6, 17' awning, $3,700. 714-842-4688.

Kitchen Stove, w/see through oven, $30. 213-939-8053.

Stereo Console, 6' Med. style, Fisher 500 rcvr., 2 12" spkrs., Garrard changer, $190. 213-392-1447.

Boat, 10', fiberglass, 5 h.p. motor, oars, $150. 213-671-1660.

Rug Shampooer, Shetland-Lewyt, floor polisher & Regina electrikbroom, used twice, $20 ea. or $35. 213-644-3922.

Ping Pong Table, ¾" table, fold up w/ casters, access., $50. 213-675-4239.

Saxophones, 2, alto & tenor, $100 ea. 213-423-1363.

Baby Bed, swing, other items, $50. 213-675-6020.

Chain Saw, McCulloch Mini-Mac 6, $135. 213-370-0824.

TV, 21" b&w, Packard Bell console, $15. 213-374-8645.

Oven, AMC bake & broil, used once, $15. 213-326-0340.

Dresser, 4-drwr., $10. 213-679-5177.

Wall Mirror, 36"x48", $40. 213-675-1000.

Miscellaneous For Sale

House, 2-story, 3-bdrm., extra lge. den, cpts., cov. patio, near new Carson shopping mall, $33,900. 213-635-7942.

Luggage Rack, lge. roof-type, canvas bag, $15. 213-375-8536.

Crib, $8. 213-676-0666.

Communications Receiver, Hallicrafters SX-99 all-wave, $40. 213-377-4623.

TV, portable, b&w all-channel, stand, Emerson, $40. 213-329-6091.

Day Bed, $15. 213-324-7059.

Hobie Cat 16, 1972 w/trlr., fully equipped, $1,700. 714-826-6065.

Living Room Set, 6-pc. Danish modern, $35. 213-831-1745.

Bowling Shoes, ladies, size 5½-6, $4. 213-360-0604.

Bicycle, boy's, Schwinn, 20" Stingray & surfboard, 8'10" Greg Noll, $30. 213-378-2790.

Boat, 1971, 15½', 650 Merc. motor w/ approx. 50 hrs., all C.G. approved, many extras, trailer, used 1 season, $2,300. 213-835-5377.

Crib, white, $15. 213-378-6415.

Aquarium, 10-gal., w/all equipment, $18. 213-327-6918.

Piano, upright, oak finish, $175. 213-498-2300.

Parts for Renault dune buggy, eng., transaxle, front end, tube frame, whls., $80. 213-821-9110.

Skis, Kastle CPM spec. 200 mm w/poles, Lang boots, size 10 m., $125. 213-973-0367.

Tripacer, 150 h.p., annual done 8-72, eng. 1180 hrs. s.m.o.h., Narco MK-12A & VOA-4, full panel, $4,100. 213-834-1882.

Motorcycle, 1971 Triumph Bonneville, 650 cc, take over pymts., $1,100. 213-370-6611.

Piano, upright, modern refinished, $170. 213-696-7529.

Chairs, Sheffield, moss green velvet, 1 is swivel rocker, $180. 213-644-4656.

Record Player, console, stereo & radio, w/ extra spkr., $60. 213-638-8250.

Skis, Head, 2 pr. w/bindings, $25 pr. 213-530-4207.

Home, tri-level, 4-bdrm., 3 bath, 2,009 sq. ft., copper plumb., bltins, 6 yrs. old, 9 mi. from Northrop $42,950. 213-534-0346.

Sleeper-sofa, 7', $50. 213-377-9723.

Divan, & chair, rock maple w/matching end & dropleaf table, $125. 213-679-3832.

Chair, uphol. w/lemon yellow Chinese pattern, almost new, $50. 213-326-0124.

House, Hollypark 3-bdrm., 2 bath, den, rumpus rm., block to school, $30,950. 213-329-9510.

Wheels, 2 chrome, slotted, 15x5.60 4 ply tubeless tires, fit GM cars, $48. 213-833-3944.

Kittens, Siamese, avail. Oct. 23, Sealpoints, $15. 213-679-8095.

Wanted to Buy

Flying Gear, WWII, helmets, jackets, uniforms, both Allied & Axis. 213-375-4312.

Rear Bumper, & right hand quarter panel for 1965 Ranchero. 213-328-3306.

Photo Enlarger, 35mm developing & printing equip. 213-326-9156.

Tool Chest, 6-10 drwr., machinist-type, reasonable. 213-323-4257.

Stove, pot belly or wood burning. 213-676-3050.

Free (To Be Given Away)

Pup, mixed Huskie, 10 wks. old. 213-834-7716.

Pup, cocker spaniel & collie, 12 wks. old, female, white. 213-830-6956.

Pups, 3 f., 7 wks., 6 m., 5 wks., mixed cocker, doxie & lab., parents under 25 lbs. 213-375-7978.

Rentals Offered

Apt, 1-bdrm., close to Northrop, comp. furn., enc. carport, $145 mo. 213-673-2787.

Apt, 1-bdrm., unfurn., sub. parking, pool, 10 min. to Northrop, Lawndale, $150. 213-679-5584, 213-670-6084.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

Cabin, Big Bear, Moonridge, sleeps 4, family only, $75 wk., $30 wkend. 714-528-2810.

House, 2-bdrm., 1½ tile baths, bltin stove, new cpts., enc. gar. w/storage space, unfurn., $190 mo. 213-679-5780.

House, 1-bdrm., bltin stove & refrig., cpts., dps., carport, gar., ¾ mi. from Northrop, no pets, adults only, $155 mo. 213-532-1190.

Cabin, near Lake Arrowhead & Running Springs, sleeps 4-5, $35 wkend, $90 wk. 213-370-7105.

RECORD CHECK

Northrop Credit Union statements of accounts were distributed recently along with the auditor's notice of record verification.

Members who did not receive them are asked to contact John B. Knight & Co., 2926 Santa Monica Blvd., Santa Monica, CA 90404. Queries should include the member's name, address, account number and mention of Northrop Credit Union.

Rentals Offered

Cabin, Moonridge, 3-bdrm., 2 baths, family only, $125 wk., $50 wkend. 213-326-7232.

Condominium, 2-bdrm., Palm Springs area, furn., $100 wk., $60 wkend. 213-327-8994.

Cabin, Lake Arrowhead, No. Shore, pvt. dock, $125 1 wk., $200 2 wks. 213-375-2255.

Cabin, Big Bear, f/place & f/a, cpt., golf, ski, $20 day, $100 wk. 714-595-3968.

Vacation Home, Bass Lake, $150 wk. 213-374-3702.

Cabin, Green Valley Lake, $45 wkend. 213-320-2002.

Mountain Home, Big Bear City, 2-bdrm., furn. incl. linens, $35 2 nights, $100 wk. 213-823-1788.

Mountain Home, Big Bear Lake, 2-bdrm., furn., all utils., sleeps 8, $100 wk., $45 wkend. 213-325-8267.

Apt, 2-bdrm., furn., utils. pd., walking distance to Northrop, $185 mo. 213-644-0011.

Apt, 2-bdrm., unfurn., cpts., dps., bltins., pool, adults, no pets, $160 mo. 213-325-2512.

Apt, 2-bdrm., unfurn., 2 bath, gar., Inglewood, $225 mo. 213-291-7392, 213-552-1985.

House, 3-bdrm., unfurn., 1 yr. lease, $210 mo. 213-425-6221.

Personals

My family & I wish to express our thanks for the flowers & expressions of sympathy at the time of the death of my sister, Phyllis Simon. MARION ST. AMANT.

Our sincere appreciation for the beautiful flowers & kind expressions of sympathy on the recent passing of our beloved son, Richard. MR. & MRS. JUNJI SARASHINA & FAMILY.

Would like ride to & from Northrop, especially ride home, 7:30 a.m.-4:30 p.m., live in Hermosa Beach, will help pay for gas. Air Force office ext. 1948.

Interested in car pool, 7:30 a.m.-4:12 p.m., from vicinity of Buena Park-Cypress-Los Alamitos area. 714-827-1082.

My sincere thanks for your help & expressions of sympathy during the prolonged illness & passing of my husband, Bill. LOU HIGBEE.

To our many friends at Northrop, our sincere appreciation for the floral tribute & the many kind words of sympathy at the recent death of my mother. LYLE CLAYPOOL FAMILY.

Ride wanted, 7 a.m.-3:42 p.m., West L.A. near Venice & Centinella. 213-390-3761.

I want to thank all of my friends at Northrop for their thoughtfulness during my recuperation from my accident. NANCY DICK.

My deep appreciation & thanks to all my friends & co-workers at Northrop for the lovely luncheon, gifts & good wishes upon my retirement. DOLORES MOOR.

To all of you who made my retirement such a beautiful, memorable occasion, I wish to express my deepest appreciation. VIOLA HANSEN.

I wish to express my sincere thanks to all my Northrop friends & co-workers for the wonderful retirement party & gift. GERTRUDE LEHMAN.

Thanks for the memories. W. H. BUSTER.

Thanks to all my friends at Northrop for making the time spent here a time to remember & for the gifts upon retirement. Try it, you'll like it. BOB BLAKENEY.

I wish to express my sincere appreciation & thanks to all my friends at Northrop who gave me a wonderful retirement party & gifts. ROBERT S. LUXTON.

Dog, peek-a-poo, 1 yr. old, seeks company of Pekingese or poodle lass. 714-531-6738.

For Sale or Trade

Boat, 13', oars, anchor $65 or trade for 8mm movie equipment. 213-371-5072.

Tuner, Harmon Kardon AM-FM, 10 W. amplifier, 15" coaxial spkr. mounted, $100 or trade for arc welder. 213-545-7149.

T-43A NAVIGATION trainer system undergoing formal software and hardware compatibility demonstration test. Successful test was performed with Northrop, Texas Instruments, Boeing and Air Force representatives actively participating.

T-43A Program Completes Category I System Tests

The Navigational Computer Subsystem for the T-43A Undergraduate Navigation Trainer Program successfully completed the formal Category I System Compatibility Test and Software Verification Test on schedule. Two subsystems and spares were shipped to The Boeing Company, Seattle, Wash. on Sept. 29.

The Navigational Computer Subsystem is comprised of a Northrop 1060 digital computer, a Converter-Storer Central I/O Unit, a Power Distribution Unit and 12 Navigator Control/Indicator Panels. The Navigation Computer Subsystem is used in conjunction with the Texas Instruments AN/APQ-122(V)7 to provide a capability for simultaneous in-flight navigation for 12 Air Force student navigators.

The System Compatibility Test and Software Verification Test were completed Sept. 21. The tests consisted of interface verification and simulated navigation missions performed concurrently by 12 operators under the coordination of the system test director. Air Force and Boeing witnesses participated in the simulated missions.

Also delivered to Boeing with the Navigational Computer Subsystem was the intermediate-level Aerospace Ground Equipment. This item of Aerospace Ground Equipment, entitled the NCS Test Station, is computer-controlled and performs automatic test and fault isolation of each LRU in the NCS.

Key personnel in the T-43A program are Jack Brennan, program manager, and Chuck Cook, project engineer.

SERVICE AWARDS

Johnson Heads List

Harold I. Johnson, who works at the Electronics Division El Monte facility, received his 25-year service award this month.

Others receiving service awards were:

Palos Verdes

Twenty years: Roger Hinzo, George Shelton and Miriam Crawford.

Fifteen years: Eugene Lake.

Ten years: Kenneth Schiefer, Theodore Trujillo, Robert Oberste-Lehn, R. J. Kasmar, Takeshi Noda, Thomas Shaughnessy and Joeanna Johnson.

Five years: Riley Briggs, David Dean, Lee Wilson and Doris Martin.

Hawthorne

Twenty years: Albert Nadel, Mary Graupmann and Bert Johnston.

Fifteen years: Walter Brock.

Ten years: Emma Belko, Dorothy Dallefeld, Mamie Bohay, Mavis Reck, Edward Geyer, Joseph Schulsinger, Napoleon Zamfirescu, Edwin Sterbenz, Jr., Marie Stehle, George Iseri, P. A. Munday, Joe Scarvace and Sheila Bondi.

Five years: Michael Cheek, Antonia Artz, Harold Drake, Lawrence Bartasavich, Ronald Smith, Frank Campos, Robert Weinman, and Fred Beier, Jr.

NRC Sponsors Property Sale

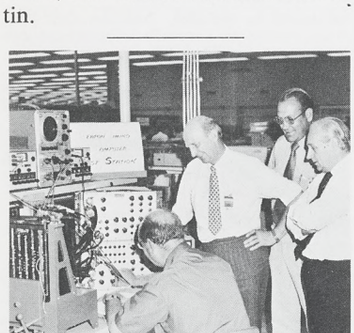
The Electronics Division's NRC will sponsor a surplus property sale at 9 a.m. Oct. 28 at the Western Ave. Warehouse facility on the corner of 132nd St. and Western Ave.

Items not to be bid such as desks, chairs, drafting tables, work benches, typewriters, calculators, test equipment, reproduction machines and storage cabinets will be offered on a first-come, first-served basis at 9 a.m. Oct. 28.

Listed number items or things which are in great demand will be available for placement of bids Oct. 25 and 26 from 4 to 6 p.m. and Oct. 28 from 8 to 9 a.m.

Lists of property to be sold are posted on bulletin boards or are available from Personnel Activities.

Items will be sold "as is" and all sales are final. Employees are required to show their identification badge for admittance.



NORTHROP'S DEPOT for maintenance and overhaul of the Ferranti navigation systems used aboard U. S. Marine Corps Harriers was completed with the acceptance of these test sets built by Ferranti. Participating in the final check out are, from left, Tom Anderson, resident Ferranti representative; Ken Brough, Ferranti ground support equipment chief design engineer; John A. McIntyre, Northrop Harrier project manager; and William Ogden, Ferranti ground support equipment product manager. Mr. Brough and Mr. Ogden are based at Ferranti headquarters, Edinburgh, Scotland.

FERGUSON—Brighter Future Ahead for Division

(Continued from page 1)

to further work on one of several programs for the Army, Air Force, Marines and Navy.

"The Electronics Division/Hallicrafters team is pursuing its engineering and developmental work on several programs involving electro-magnetic techniques. This work is directed at acquiring substantial contracts in a large, emerging market.

"Formation of the Strategic Missile and Space Systems Department has enabled our customers to more readily identify our capabilities in the space and missile areas. I feel certain that if we continue to measure up to the rigid requirements of SAMSO that we will increase our level of business in this area.

"The Precision Products Department continues to be a leading producer of high performance inertial sensors for the C-5 navigation system, Polaris/Poseidon missiles, Minuteman missiles, reconnaissance vehicle programs and for several satellite programs.

"PPD also is expanding its penetration of the market for control and stabilization components for tactical missiles, tactical aircraft, and torpedoes, and has moved into major subsystem activity with the B-1 escape module control subsystem, and the B-1 gyro stabilization subsystem.

"The Electro-Optical Department is advancing its Debfax and Digisplay programs and is proceeding on several military research and development contracts.

"Both of the subsidiaries responsible to the Electronics Division are operating profitably. Northrop Dakota, Inc., at Newtown, N.D., is producing hardware for the Electronics, Aircraft and Electro-Mechanical Divisions and is also expected to acquire substantial additional business in the commercial area. As a plus, Northrop Dakota, which is heavily staffed by American Indians, is an important factor in easing severe unemployment on the reservation in that area.

"Berkeley Scientific Laboratories has done a 'turn around' in business performance since it was acquired by Northrop in February. In addition to its successful penetration of the Medical Data Systems market, BSL now has begun to extend operations in the Business Data Systems field. Significant contracts recently received assure a profitable 1972 for BSL with even greater prospects for 1973."

PRESENTS PAPER

Dr. G. N. Haas, Systems Synthesis unit, presented his paper entitled "Inertial System Acceptance Sampling Plans" at the Sixth Biennial Guidance Test Symposium, Holloman Air Force Base.

NORTHROP NEWS

ELECTRONICS DIVISION EDITION

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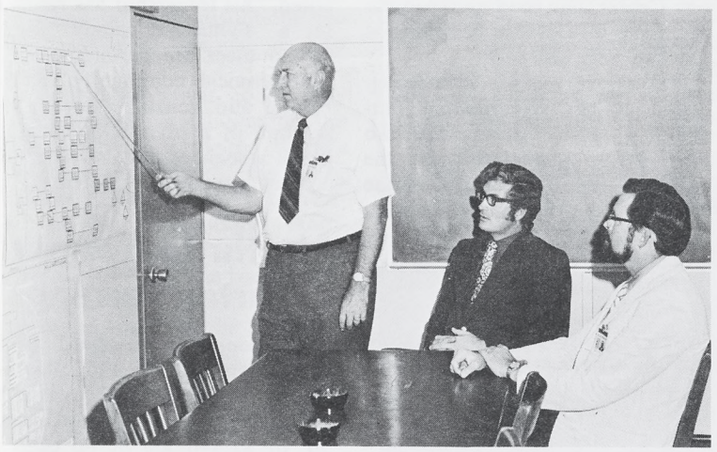


DISCUSSING the AWACS (Airborne Warning and Control System) program are, left to right, John Luckett, Master Scheduling; Fred Woods, program manager; and Chuck Cook, Project Engineering.

Affirmative Action Plan Provides For Equality

The Electronics Division, Hawthorne, has established an Affirmative Action Plan (A.A.P.), a division-wide program aiming to correct deficiencies in the utilization of minority-group people, according to Phil Schneider, chief of Employee Relations and Training.

Two committees have been formed that will strive to ensure that all people may share equally in the opportunities afforded employees at Northrop. The A.A.P. Management Committee is composed of at least four senior management personnel with specific organizational areas of responsibility. Monthly meetings are held, and individual committee members report progress toward established goals in their respective areas.

The A.A.P. Advisory Committee is composed of 19 minority employees of the Hawthorne facility. These employees serve in a voluntary capacity and provide the A.A.P. Management Committee with advice and counsel on the programs, policies and practices affecting minorities in the force and in programs affecting the minority communities. Some of the programs proposed are:

Education Program — To develop a presentation that can be made to pre-high school and junior college students explaining the different types of jobs and careers available at Northrop and throughout the aerospace industry, and to schedule open house activities for minority schools to show what Northrop does and the types of jobs available.

Educational Assistance — To develop a program that will sponsor at least two minority hardship cases in part-time work to assist them in completing their education.

Community Education Projects —To expand the current listening program being conducted at the Hollypark Library to include the addition of reading material.

In-House Job Opportunities — To establish an effective grapevine that will inform current minority employees of new job opportunities prior to bringing in new people from the outside.

A similar advisory committee is also being organized at the Palos Verdes facility.

Helping Others Is AID/Noraid

'Tis the time of year again for warm hearts and generosity. For those of you who enjoy helping others, it's "SIGN UP TIME" for AID and NORAID through Nov. 17.

If your designation to your favorite charity has expired, please be sure to take time and renew it.

FOR BOEING

Northrop Awarded AWACS Contract

The Electronics Division will manufacture and perform system integration of the navigation and guidance system for the U.S. Air Force's Airborne Warning and Control System (AWACS) under terms of a contract awarded by The Boeing Company. Potential value of the award is estimated at $25 million, according to Fred Woods, program manager.

Advance authorization for initial engineering and parts purchase, in addition to development of integration hardware, has been received by Northrop.

AWACS, originally awarded to Boeing in mid-1970, provides airborne high and low-altitude surveillance over both land and water, and features a survivable warning and control system. The system incorporates a long-endurance capability, utilizing an existing commercial jet transport that is able to react and deploy rapidly with tactical air forces to contingency areas.

The Electronics Division will be responsible for the modification, production and testing of equipment already in existence and applicable to the AWACS program. Eight full systems will be produced in the development stage of the program, with the first system scheduled for delivery to Boeing early next fall. The development of AWACS is expected to continue for another two years before a full-production decision can be made.

Shelters Built For USMC

Being erected on the east parking lot of the Electronics Division, Hawthorne, is a middle-sized building of a large shelter family.

Northrop, in conjunction with the U.S. Marine Corps, is developing a family of low cost reusable shelters and a logistics trailer for Marine Corps use. All of the shelters are compatible and interchangeable with the ISO (International Standards Organization) containers and can be handled and shipped on container ships.

John Bloodworth, project manager, said, "The building is being erected as part of a comprehensive test program that will subject all the shelters to the environments they will likely meet when used by the Marines." The first tests on this building will be a combined wind and rain test where the wind will come from the same machines that are used to simulate hurricanes for motion pictures.

Warren Schreyer, project engineer, added that a smaller shelter family consists of a versatile series of buildings that can be rapidly knocked down for quick and easy movability. Shelters can be joined to form larger buildings.

OVERSEEING the construction of this temporary shelter are: left to right, Tony Amundson, crane; Warren Schreyer, project engineer; Bob Faro, engineer; and John Bloodworth, project manager

NEED FOR BLOOD IN GREAT DEMAND

The final, and possibly the most important, blood bank of the year is scheduled for Dec. 15 at the NRC Clubhouse.

The time will be from 8:30 a.m. to 5:30 p.m. in order to accommodate employees on second shift.

Doughnuts and coffee will be served.

DR. JOHN S. FOSTER, JR., presents award to G. Ronald Wenninger. With them are Mrs. Wenninger and Bob Wenninger.

San Diego Office Takes Part in Open Sea Dive

Four divers assigned to Commander Submarine Development Group One in San Diego successfully completed an open sea saturation dive at the depth of 1,010 feet near San Clemente recently.

The dive was part of an operational evaluation of the Navy's Deep Dive System, Mark 2.

Northrop personnel from the Ocean Engineering Office, San Diego, participated in the program. They are W. D. Buckbee, manager of the San Diego office; Ray Flynn, who provided on-scene technical support; Lee Wearda, who assisted in writing the operations evaluation plan; and Walt Bennett, who assisted in the preparation of training documentation.

In saturation diving, man is subjected in a decompression chamber to a pressure equal to the known working depth while he is still on the surface. This saturates his body with breathing gas, helium-oxygen. He is then lowered to his undersea working depth in a Personnel Transfer Capsule that maintains the saturation pressure. He then leaves the capsule to work, wearing a hot water suit and modified lightweight underwater breathing apparatus.

When the diver is tired, he returns to the surface via the Personnel Transfer Capsule to sleep or eat in the Deck Compression Chamber, but remains at underwater pressure during this time. He may then return to depth to continue his work. He may work for days or weeks and pay a decompression penalty only once.

Under conventional diving methods, the diver wearing heavy underwater equipment is lowered to a working depth where his activity is restricted according to depth. After each dive he must decompress before coming to the surface.

Saturation diving permits a diver to make repeated dives. Then regardless of whether the diver remains under pressure for hours, days or weeks, only one decompression period is required. This greatly increases the amount of time that a diver can do useful undersea work.

The general objective of the recent 1,010 foot dive was to prove the feasibility of surface supported saturation diving in the open sea to a depth in excess of 850 feet. The diving systems are intended to develop the capability of man to do useful rescue and salvage work at deeper ocean depths than is possible with conventional diving gear.

The maximum emergency depth authorized for conventional SCUBA diving in the Navy is 200 feet. The maximum conventional hard hat diver depth attained by the Navy is 561 feet.

Submarine Development Group One is the Navy Command assigned the mission of operating as the permanent operational command in the Navy for prosecution of Deep Submergence Systems development.

It is commanded by Captain Samuel H. Packer, USN. Commander D. G. Disney, USN, who is head of the Diving Systems Division of Commander Submarine Development Group One Staff, was the officer in tactical command of the project evaluation.

TO WENNINGER

Civilian Service Medal

G. Ronald Wenninger, manager, Laser Systems Laboratories, Northrop Research and Technology Center, has been awarded the Secretary of Defense Meritorious Civilian Service Medal.

The award was made in recognition of Mr. Wenninger's outstanding service during the two years he was associated with the office of the director of Defense Research and Engineering before joining Northrop in September 1972.

The citation noted that Mr. Wenninger made outstanding contributions to the planning, initiation and conduct of research and development programs of significant impact on the defense of the United States.

Mr. Wenninger was responsible for, and contributed in a major way to, the long range planning and mission analysis as it relates to tactical warfare programs performed by the three services, the citation said.

During his last year in the Pentagon, Mr. Wenninger led a special study for the director, Dr. John S. Foster, Jr., concerning tactical nuclear weapons R&D. Regarding this effort, the citation noted, "his leadership has resulted in a significant study which should meet the requirements of the technical community for direction and guidance toward the solution of a myriad of complex issues associated with this critical area of our national defense."

HALLICRAFTERS CO. RECEIVES CONTRACT

The Hallicrafters Company, a wholly owned subsidiary of Northrop, has received a $5.1 million contract to provide infrared countermeasure pods for U.S. Air Force tactical aircraft.

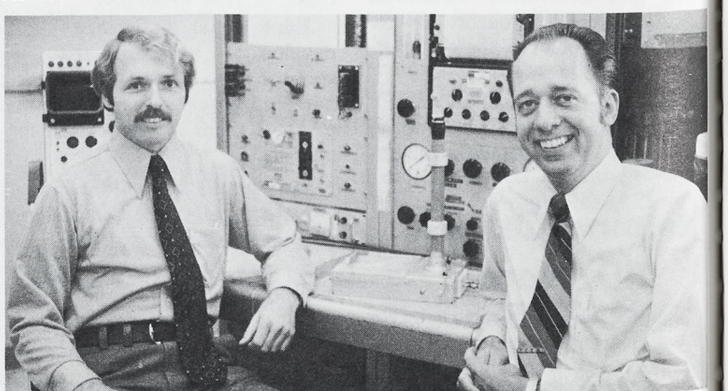
The firm fixed price contract, let by the Air Force's Aeronautical Systems Division, Wright Patterson AFB, Ohio, also calls for Hallicrafters to provide overseas maintenance support, initial spare parts, aerospace ground equipment, provisioning spares, and provisioned depot support services and data.

Northrop Reports Quarter Earnings

Developing an upward trend that began early in 1972, Northrop reported increased earnings for the third quarter ended Sept. 30, of $2,846,000 or 66 cents a share on sales of $146,822,000 compared with year-earlier results of $2,818,000 or 61 cents a share on sales of $133,024,000.

For the nine months, net income was $7,927,000 or $1.79 a share on sales of $414,448,000 compared with $9,375,000 or $1.99 a share on sales of $415,232,000. Current backlog is approximately $735 million compared with $520 million a year earlier.

Commenting on the third quarter results, President Thomas V. Jones pointed out, "this report supports the statement made at the company's annual meeting in December that late 1971 and early 1972 would see the 'bottoming out' of the Northrop sales and earnings picture, and that new product business, the acquisition of several key subsidiaries and increasing sales of the company's F-5E International Fighter would begin to bring increased results for the company in the second half of 1972 and in 1973."



DR. JOSEPH R. SROUR, left, and Dr. Orlie L. Curtis Jr., Research and Technology, received the 1972 IEEE Conference Outstanding Paper Award. Their award-winning paper was entitled, "Short-Term Annealing in Silicon Devices Following Pulsed 14-MeV Neutron Irradiation." Dr. Srour is a member of the Senior Technical Staff in the Solid State Electronics Lab. Dr. Curtis is director of the Solid State Electronics Lab.

Aviation Leaders Honor John K. Northrop

John K. Northrop, pioneer plane designer and builder, and co-founder of Northrop Corporation, last month was inducted into the International Aerospace Hall of Fame, at that institutions annual Awards Banquet in San Diego.

Mr. Northrop was honored by world leaders in aviation on the 25th anniversary of the world's first supersonic flight. Brig. Gen. Charles E. Yeager, USAF, a member of the International Aerospace Hall of Fame, received special recognition at the banquet for the historic event when he broke the sound barrier in the bullet-like X-1 rocket plane on Oct. 14, 1947.

Forming the Company

Mr. Northrop, a native of Newark, N.J., joined in forming Northrop Corp. in 1939 and served as president and head of engineering and research as well. In 1952 he retired and has since been a consultant for a number of organizations.

He is one of the great figures in aviation in America today because of his contributions to the advancement of aerospace technology. Due to his pioneering inventiveness, the name Northrop is known and respected wherever airplanes are flown. He is one of that small group of pioneers who designed and built the early successful commercial airplanes and thereby paved the way for modern flight. He perfected the all-metal aircraft, and designed the Northrop Alpha, Beta, Gamma and Delta planes which pioneered smooth stressed skin metal construction in a commercial airplane. For the first time, and in one tremendous step, the useful life of an airplane was increased more than tenfold.

As head of engineering at Northrop Corporation, he was responsible for the design of seaplanes used by the Norwegian government in exile in WW II, the famous Flying Wing bombers, the Black Widow P-61 radar night fighters, the F-89 Scorpion all-weather interceptors and the Snark SM-62 intercontinental guided missile. He was one of the pioneers in the development of automatic celestial navigation, used to guide the Snark in intercontinental flight.

STANDING IN front of the Northrop YB-49 Flying Wing, left, is John K. Northrop, co-founder and past president of Northrop Corp. Mr. Northrop was responsible for the design of the Northrop Flying Wings. The Flying Wing was acclaimed the "world's most powerful bomber" when it made its first flight in October 1947. At the 1972 International Aerospace Hall of Fame Banquet, right, are Brig. Gen. Charles E. Yeager, USAF, left, and Mr. Northrop. Gen. Yeager received a special award for being the first man to break the sound barrier and Mr. Northrop was inducted into the Hall of Fame.

Many Honors

He received the President's Certificate of Merit in recognition of his contributions to the nation's defense in World War II and was selected in 1947 to deliver the Wilbur Wright Memorial Lecture before the Royal Aeronautical Society in London. He served as president of the Institute of Aeronautical Sciences in 1948 and is an honorary member of the American Institute of Aeronautics and Astronautics. He was awarded the Spirit of St. Louis Medal of the American Society of Mechanical Engineers for "meritorious service in the advancement of aeronautics," and he is a member of the Royal Aeronautical Society.

He is co-founder of the Northrop Institute of Technology, and was awarded an honorary doctor of science degree by Occidental College in 1948 and an honorary doctor of laws degree by Northrop Institute of Technology in 1970.

With the Prominent

Mr. Northrop's induction into the International Aerospace Hall of Fame places him on an honors list of many prominent persons of aviation and space history, including Amelia Earhart, Orville and Wilbur Wright, Wernher von Braun, Charles A. Lindbergh, John H. Glenn, Jr., Yuri A. Gagarin, and Alan B. Shepard.

The Hall of Fame, located in San Diego's Balboa Park, was chartered to honor individuals who have made significant contributions to aerospace progress and to provide the public an opportunity to learn of the work of these men and women of aviation and space history.

Discount Toys Are Available

Personnel Activities has made arrangements with two of the Southland's largest wholesale toy and game distributors for employees to purchase Christmas gifts at greatly reduced prices.

Northrop identification badges must be shown to make purchases at Pul-Wal, Inc., 1035 S. Grand, on Dec. 2, from 9 a.m. to 4 p.m. and Dec. 3, 10 a.m. to 4 p.m.; and the Southwestern Novelty Co., 330 S. Los Angeles St. on Dec. 9, from 9 a.m. to 4 p.m., on Dec. 10 from 10 a.m. to 4 p.m. Both locations are in Los Angeles.

SMOOTHSAYERS

The Smoothsayers Toastmistress Club is having a "demonstration meeting" Nov. 20 at 7 p.m. in the Northrop Recreation Club's clubhouse, Hawthorne. Anyone interested in learning procedures for conducting meetings, presenting programs, better methods of communication, and general self-improvement is invited.

Admission is free and refreshments will be served. For information contact Gay Dillard, (213) 870-7528 or Shirley Wilson, ext. 2259.

ARE YOU INVOLVED IN SERVICE WORK?

The community service activities of various Northrop organizations are a matter of record, but individual efforts are frequently overlooked.

In order to inventory those individual efforts, we ask that those Northrop employees who voluntarily participate in community service work complete the following survey and return it to: Northrop News, 170/40.

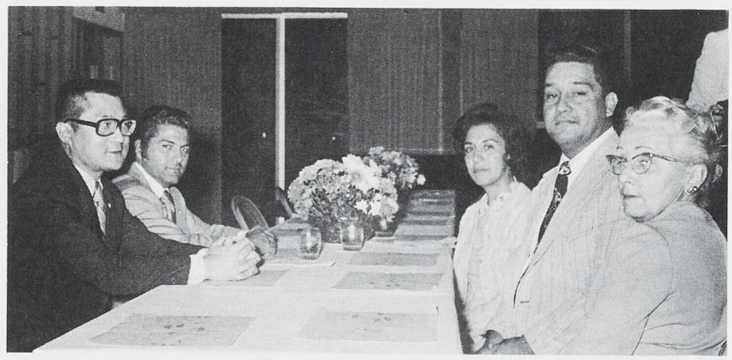
Enter the approximate number of man-hours you devote annually to community service. Base estimates on 1972 activities. Enter annual total on bottom line.

	Estimated Man-hours
Advisory or action bodies of local, county, state and federal governments—such as City Planning, State Development Programs, agencies of OEO, etc.	
Youth organizations—such as Boy Scouts, YMCA, Big Brothers, PAL, etc.	
Welfare organizations—such as Community Chest, Salvation Army, job training and placement, etc.	
Health organizations—such as Red Cross, hospitals, mental health associations, Easter Seals, UCP, etc.	
Civic improvement groups—such as neighborhood development, safety campaigns, get-out-the-vote drives, better laws, clean-up work, Urban League, etc.	
Public and/or private schools and colleges	
Church or religious organizations	
Other (describe)	
Total man-hours for public service, annually	

Name_____ Orgn._____

VISITORS

Mr. and Mrs. John K. Northrop are touring the Aircraft Division facility today as guests of General Manager Welko Gasich.



COMMUNITY MEETING with Tom Lee, Jesse F. Perez, Orange City mayor, Mr. and Mrs. Joseph Venegas, directors of Orange Mexican-American Friendly Center, and Mrs. Thomas I. Nalbach.

NORTHROP'S TOM LEE

Helps Mexican-Americans

Tom Lee, Ocean Engineering, San Diego, has formed a committee among members of the First Presbyterian Church of Orange who have expertise in systems engineering, proposals, contracts, housing, education and medicine to assist people of the El Modeno Mexican-American barrio.

In cooperation with the El Modeno community and the California Regional Medical Programs, Mr. Lee and his team of experts are assisting this under-privileged community in preparation of a Health Education Grant Application.

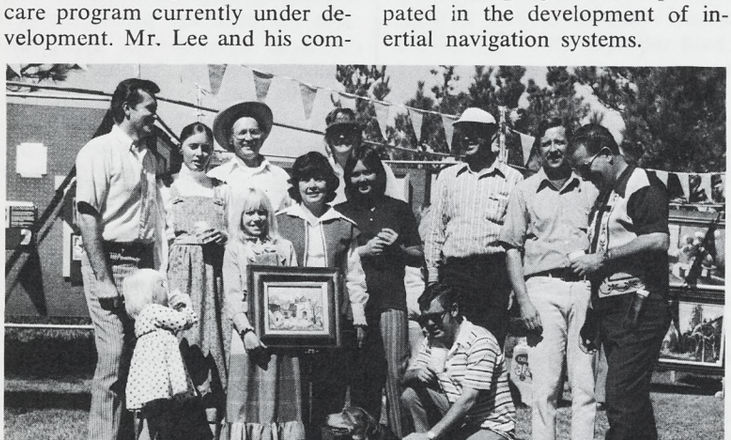
If approved by the Department of Health, Education and Welfare, this grant will provide urgently needed medical care and health education to medically indigent families of El Modeno.

This project is but a small part of a more comprehensive health care program currently under development. Mr. Lee and his committee also intend to evaluate other community needs such as housing, education and employment.

Mr. Lee said the way members of the committee have assisted him is a "splendid example of how talents acquired in industry can be applied to improvement of our communities and to bring hope to our less fortunate neighbors."

Strong Supporter

Mr. Lee is a strong supporter of professional, civic and religious organizations. He has been program chairman and councilor for the Marine Technology Society, and first vice president for the Santa Ana Community Concert Assn. He is an Elder of the First Presbyterian Church of Orange, and Skipper of the Los Ranchos Presbytery Mariners. He joined Northrop in 1957 at the height of the Snark program and participated in the development of inertial navigation systems.



NORTHROP ARTISTS, young and old were out for the Palos Verdes Art Association's annual Art for Fun(d)s Sake exhibition held each year at the Electronics Division in PV. Here are, from left, Bob Mack, with daughters, Robin, Lisa and Windy, Chuck Felder, Mrs. Bob Peck, Harold Leff, Carole Felder, and Jack Flannagan, from Electro-Mechanical Division; Dick Mosher and Ed Mosher, Aircraft Division; and kneeling in front, Bill Gray, Electronics Division. The dog is Barney Peck.

TOUGH 'SCIENCE' COURSE

For Traveling Students

Summer school for the four daughters of Gordon Bricken was a van that rolled 10,500 miles while making a figure eight journey up and down, and across the United States.

The "school's" curriculum included learning how money was made in the Denver Mint, how the West was won in Dodge City's exhibits, about our presidents at Lincoln's tomb and the Eisenhower Library, and—among many other things — a firsthand lesson in science when their van was struck by lightning in Florida.

The trip, which included Mr. Bricken's wife, Maureen, and his mother, Mrs. Kathleen Bricken, was intended as an educational jaunt for Barbara, 8, Mary, 7, Patricia, 5, and Victoria, 1.

Trip Begins

It began in Los Angeles and went up through Nevada, Utah and to Montana. Then cut south through Yellowstone to Texas and then due east to Florida and Disneyworld.

Here Mr. Bricken had to leave the tour temporarily to fly back to a Northrop meeting. Mrs. Bricken took over the driving chore, heading north through Georgia, Kentucky and Ohio.

Coming out of Florida she ran into a heavy electrical storm. Lightning bolts began striking the ground around the road.

"I felt like I had moved into a movie where bombs are going off all around the hero," Mrs. Bricken recalled.

Then suddenly lightning struck the van. It felt as if the vehicle had been hit by a giant's fist. The van shook. There was a tremendous flash of light, followed by the odor of burning canvas when the van cover was destroyed.

"My first thought was the children and their reaction," Mrs. Bricken recalled. "But they took it much better than I."

Mr. Bricken rejoined the group in Ohio, driving back through St. Louis, Kansas, El Paso, and returning to Los Angeles.

"We planned the trip as a sort of go-there geography lesson for the girls," he said. "But it turned out to be a series of lessons in so many things that we'd like to have a similar school every summer.

"However," he added reflectively, "while we learned the value of finding out about the country firsthand instead of reading about it in a book, I think we would all prefer to pass up the lesson in science. We want no more lightning."

Mrs. Ondrasek Wins Dance Contest

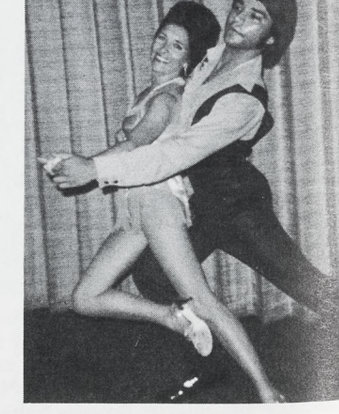
"That's what I want to do," said Sheila Ondrasek, Aircraft Division secretary, when she saw an exhibition of International Ballroom dancing.

And that is exactly what she did. In April Mrs. Ondrasek enrolled in a dancing school. Five months later she won two exhibition trophies, dancing with her instructor Don Martinez in a contest jointly sponsored by Victor Dru Studios and the Dance Teachers Association of California.

Her first trophy was for Best Exhibition, International Rhumba. The second was first runner-up in the American Free Style dancing. Judges for the contest included the internationally known English team of Cleve and Wade.

International Ballroom dancing, according to Mrs. Ondrasek, differs from ordinary ballroom dancing. It is based on English standards and is very precise, with the judges paying great attention to body style, carriage and foot position. Also, unlike American ballroom dancing which is usually done in evening clothes, different costumes are permissible in International Ballroom dancing.

"It is really great fun," she said, "and even more fun when you win a trophy the first time out."



Mrs. Ondrasek and partner.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Rambler Classic, 1964, auto., $250. 714-892-7174.

Datsun, 1971, 510 wagon, auto. trans., AM-FM radio, $1,750. 213-834-1812.

Chevy II, 1964, 4-dr., $375. 213-675-7740.

Volkswagen, 1960 Westphalia camper, $725. 213-677-6926.

Camaro, 1971, 350 V-8, a/c, radio, p/s, a/t, tape deck, $2,900. 714-522-0504.

Chevrolet, 1965 Impala S.S., 4-dr. 396, a/c, p/s, p/b, $525. 714-522-2740.

Dodge, 1965 Dart, 6 cyl., auto., rebit. eng., $450. 213-327-9191, 213-532-0122.

Pontiac, 1963 Grand Prix, a/c, fully powered, $450. 213-324-7059.

Pontiac, 1964, 2-dr. h/top, 4-spd., r/h, $300. 213-545-3128.

Mustang, 1970 fastback, pwr. d/brakes, p/s, $2,195. 213-379-8067.

Datsun, 1971 240Z, 9,000 mi., a/c, mags, $4,400. 213-645-0804.

Mustang, 1965, r/h, a/c, auto., p/b, p/s, $999. 213-695-1687.

T-Bird, 1957, p/s, p/b, 3-spd. stick & o/drive, $1,295. 213-329-3900.

Chevrolet, 1964 Impala, 4-dr. h/top, V-8, auto., p/s, $250. 213-322-3319.

Pontiac, 1969 station wagon, V-8, 3 seats, 38,000 mi., $2,700. 213-375-8536.

Buick, 1965 LeSabre, 4-dr. h/top, a/c, $395. 714-828-2857.

Camaro, 1970, Rally Sport, 350 V-8, p/b, p/s, r/h, $2,400. 213-326-3704.

Oldsmobile 442, 1969, 400 c.i.d. eng., 4-spd. trans., AM-FM radio, htr., p/b, $1,500. 213-320-0328.

Cadillac, 1964 Sedan De Ville, full power, $795. 213-675-8757.

T-Bird, 1956, full power, $1,900. 213-671-7272.

Camaro SS, 1969 4-spd., posi-traction, pwr. d/brakes, AM-FM radio, $1,700. 213-673-0416.

Pontiac, 1967 GTO h/top, d/brakes, a/c, 8-track, $1,200. 213-377-6658.

Lincoln, 1964 Continental, 4-dr. sedan, full power, a/c, $750. 213-882-0761.

Cadillac, 1971 Sedan de Ville, many extras, $5,500. 213-542-4872.

Pinto, 1972, 2,000 cc 4-spd., AM-FM-tape deck unit, $1,900. 213-541-1719.

Camaro, 1968, 4-spd., Holley carb., $900. 213-322-4180.

Ford, 1966 Fairlane, auto., p/s, V-8, $775. 213-374-2995.

Pickup, Dodge, w/8′ Aristocrat cabover camper, 1970 ¾-ton D200, 383 cu. eng., 4-spd. trans., many extras, $3,200. 213-588-3784.

Station Wagon, 1971 Dodge Colt, 4-spd., radio, a/c, $1,950. 213-674-4119.

Chevrolet, 1954 Suburban carryall, $265. 213-677-8543, 213-671-5029.

Winnebago, 1970 Chieftan, 22′, Dodge chassis, 20,000 mi., sleeps 6-8, a/c, Onan gen., many other extras, $10,800. 213-472-6052.

Volkswagen, 1966, 1300 series, $525. 213-645-3169.

Station Wagon, 1963 Fairlane, 9-pass., V-8, p/s, r/h, auto., $350. 213-671-4550.

Ford, 1971 LTD Brougham, 19,000 mi., p/s, p/b, a/c, $3,150. 213-926-7624.

Volkswagen, 1964, $499. 714-962-8127.

Chevrolet, 1968 Impala custom h/top, factory air, p/s, r/h, $1,495. 213-821-8150.

Miscellaneous For Sale

Shag Rug, shocking pink, 6′x9′, $25. 213-545-7149.

Skis, Hart Holiday, Geze bindings & boots, $100. 213-423-1363. C

Bunk Bed Set, 3 30″, mattress, $75. 213-675-4239.

Floor Pillows, 4 lge., $25. 213-675-1000.

Trailer, utility, 8′ long, 3½′ wide, 3′ h., spare tire, $150. 213-645-6494.

Tape Player, Elgin stereo 8-track port., $45. 213-324-1908.

Bicycle, 27″ 10-spd., many extras, $89. 213-542-6716.

Miscellaneous For Sale

Stroller, $10. 213-329-6091.

Trailer, 1968 Cardinal Low Line, $870. 213-675-4597.

Motorcycle, 1970 350 c.c. Honda, many extras, $650. 213-670-2098.

Cradle, Babyline, $40. 213-547-4141.

Flight Jacket, Northrop orange, lge., $18. 213-391-5046.

Electrikbroom, Regina, used once, $20. 213-644-3922.

Travel Trailer, 26′, 1969 Monitor, Eastern coach, self-contained, sleeps 6, $3,700. 714-842-4688. C

Beds, twin, spring, mattresses, white plastic h/boards, $20 ea. 213-675-6081.

Air Conditioning Unit, 1960 Cadillac Cpe. de Ville, removable, use in other autos, $325. 213-676-1580.

House, Hollypark, 3-bdrm., 2 baths, den, rumpus rm., $29,950. 213-329-9510.

Stove, modern, gas, $30. Box 1101.

Freezer, Coldspot, 17 cu.ft., 8 yrs. old, $75. 213-672-1853.

Fence, steel picket-type, 75′x2′ h. w/attach. post, $20. 213-323-3528.

Motorcycle, 1972 Stens dirt-type, Hodaka 100 eng., 5 mos. old, $275. 213-377-4972.

Rollaway Bed, $12. 213-923-9957.

Dryer, gas, Whirlpool, $25. 213-372-5508.

Motor, ⅓ h.p. elec., on & off switch, $10. 213-370-3821.

Refrig.-Freezer, Philco, 14.5 cu.ft., near new, $150. 213-638-6238.

House, 3-bdrm., 1¾ bath, cpts., dps., bltins, 5¼% G.I. loan, Holly Park, $31,250. 213-329-1952.

Mobile Home, 12x60, carport, 8′x36′ enc. patio, $5,500. 213-532-1344.

Dining Room Chairs, 6 Mediterranean style, $48. 213-860-3022.

Hood Lock Down Kit, delux rings & cables, fits Ford cars, $10. 213-375-1685.

Typewriter, 15″ Underwood manual, $25. 213-675-2331.

Pups, collie, $75-$150. 213-370-4475.

Organ, electronic Silvertone/Thomas 2-key board manual, Leslie, 3 yrs. old, $495. 213-324-9223.

Dining Room Table, maple, 4 chairs, $25. 213-549-2294.

Acreage, 2½ acres adjacent to Apple Valley, terms, some utils., roads, $5,950. 213-325-5609.

Pups, German shepherd, AKC champ., male $100, female $75. 714-536-6291.

Tires, 8.55x15 & 8.15x15, $15. 213-371-6758.

Pressure Cooker, Presto, never used, $12. 213-545-2577.

Boat, 15′, 35 h.p. Evinrude motor, 17′ trailer, many extras, $500. 213-398-8111.

Acreage, 2½ acres, Antelope Valley, water & elec., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

China, Noritake, Blue Rose pattern, over 60 pcs., $40. 213-375-7006.

Bedroom Set, 7-pc., blonde, box spring & mattress, $75. 213-294-2461.

Travel Trailer, 15½′ Scotsman, sleeps 5, $350. 213-371-7274.

Projector, regular 8mm, case, bltin splicer, $25. 213-371-1070.

U.S. Flag, 8′x5′ cotton, seldom used, $10. 213-675-6128.

Hi-Chair, playpen, $10. 213-376-4831.

Movie Equipment, 8mm camera, projector, editor/splicer, screen, $75. 213-679-6982.

Kitchen Table, 4 chairs, $10. 213-641-5362.

Skis, Hart, 190s, $50. 213-644-6940.

Ping Pong Table, all access., $15. 213-372-7018.

Bicycle, 3-spd., 1 yr. old, $65. 213-644-9292.

Tape Recorder, Telefunken, $125. 213-675-7673.

Dining Table, oval, 6 chairs, Salem maple, exts., $75. 213-375-9553.

Boat, 20′ catamaran, fully equipped, $750. 213-597-0550.

Engine, Falcon, 170 cu. in., 6-cyl., $35. 213-328-3306.

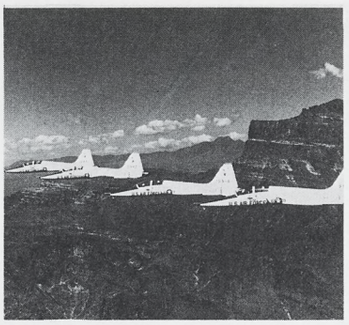
Melodica, w/case, $10. 213-675-6397.

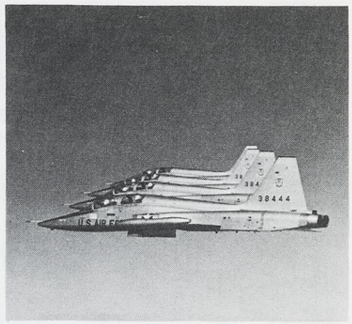
Lot, corner, residential, Lake Havasu, Ariz., $7,500. 714-526-2962.

Chord Organ, elec. Emenee audio 3-oct., bench, $25. 213-644-0506.

Motorcycle, 1967 90 Suzuki, dirt or street, $175. 714-524-9688.

Sofa Bed, vinyl, & water skis, $40. 213-324-8853.





OOPS! IN OUR October issue, page 3, on Northrop's participation with the Air Force these 25 years, in a mix up in printing we put an F-5B picture, right, over a T-38 caption. Since our readers who phoned in about the error said they intend to keep the page for historical value, we are printing the right picture for those who would like to cut it out and paste it on the page they are saving (and also to cover up our error).

Miscellaneous For Sale

Cover, green, fitted, for studio couch w/ matching round bolsters, $10. 213-645-7972.

Tires, 4 Delta, whls., hub caps, mounted, 800x16.5, 8-ply, 8-lug, $100. 213-325-7888.

Pup, German shepherd, male, 6 mos. old, $50. 213-325-0116.

Organ, Kimball Swinger w/rhythm, $650. 714-832-7014.

Motorcycle, 1970 Hodaka Super Steen, many extras, $350. 213-679-6902.

Motorcycle, 1972 Honda SL70, $300. 213-675-6206.

Dog, Maltese, reg., female, 11 mos. old, shots, $160. 213-534-1809.

Bicycle, 20″ girl's, $5. 714-523-5315.

Fencing, chain link, 140′ 11 ga. std. wire 48″ high, $25. 213-377-9723.

Bumper, front, Karmann-Ghia, $25. 213-329-2893.

Sloop, 25′ Coronada, custom mahogany int., 6 h.p. Evinrude, $5,250. Box 1102.

Sailboat, 29′ Triton sloop, inbd. eng., 3 sets of sails, fully equipped, sleeps 4, $7,900. 805-642-4142.

Drum Set, Ludwig Super Classic, cymbals, stands, $599. 213-291-6075.

Washer, Hot Point Silhouette S200, 1963, $35. 213-377-5853.

Bicycle, tandem, Schwinn 5-spd. de lux twin, $100. 213-324-9223.

Fencing, chain link, 30′, bars, clamps, 36″ h., $7. 213-328-0887.

Mobile Home, 20′x55′, 1969 Kit Fairview, 2-bdrm., 2 bath, forced a/h, Huntington Bch., $12,000. 714-847-7874.

Organ, Conn, electronic, Leslie spkr., 2 full keyboards, $200. 714-524-2128.

Tires, Firestone 145, pr., 13 Cavallino sport 200 radial, never mounted, $19 ea. Box 1103.

Mobile Home, Villawest 20x54, 2 yrs. old, adult park, pets accepted, 2-bdrm., 2 baths, $11,500. 213-320-5834.

Chair, moss green velvet, $90. 213-644-4656.

Motorcycle, 1970 Honda CL-450, 7,000 mi., $675. 213-326-0279.

Engine, Porsche, 1600 cc, complete, extra spare parts, $385. 213-821-9110.

Microwave Oven, Amana, delux model, $300. 213-675-7938.

Fire Extinguisher, Ansul, S-350 lb. dry chemical, 50 ft. of hose, used once, $500. 714-839-5218.

Fireplace, Swedish, complete, h/ware & screen, $125. 213-378-9660.

Wanted to Buy

Cornet, or trumpet for child. 213-833-2707.

Utility Trailer, box-type, metal or wood. 213-545-5995.

Baby Porta-Crib, in good condition. 213-530-3118.

Free (To Be Given Away)

Dog, miniature Greyhound, 3 yrs. old, male. 213-676-7007.

Cat, male, 8 mos. old, had shots. 213-370-9037.

Pup, cokapoo & German shepherd, 8 wks. old, black, male. 213-830-6956.

Child Care

Child Care offered, my home, toddlers only, Lawndale. 213-542-5434.

Found

Northrop Golfers call for your lost golf covers at Personnel Activities, ext. 2486.

Found

Glasses, 1 pr., men's, black rims, Dr. Palmer, optometrist, found in Northrop Daihatsui, call ext. 4684.

Personals

To my friends & fellow workers, a million thanks for the lovely retirement party & gifts. FRANK L. ROMERO.

Our sincere thanks to all of Artie's friends at Northrop. The flowers & donations to the Heart Fund were deeply appreciated. MRS. ARTIE VAUGHN & FAMILY.

Our sincere appreciation for the flowers & kind expressions of sympathy on the recent death of our son, Gordon. MR. & MRS. DONALD E. SMITH & FAMILY.

I wish to thank my many friends for the surprise retirement & going away party & gifts. I shall always remember all my coworkers & friends. JAKE SUPERATA.

My sincere appreciation for the lovely flowers & kind expressions of sympathy at the time of the death of my mother. A. G. MACLEOD.

I want to express my most sincere thanks & appreciation to all my friends & coworkers at Northrop for the wonderful retirement party & gifts. I will always remember our association. GENE MUSK.

To my dear Northrop friends, thank you for the flowers & expressions of sympathy on the passing away of my mother. ROY & JOAN HUNTER & FAMILY.

Ride Offered, 7:30 a.m.-4-12 p.m., Huntington Beach area, vicinity San Diego Fwy. & Beach Blvd. or Warner Ave., Aircraft exts. 4505, 4506.

For Sale or Trade

Chevrolet, 1965 Bel Air, $450 or trade for pickup. 213-325-2637.

Travel Trailer, 1968 15′ Field & Stream, propane range, elec. lights, $900 or consider trade for pickup camper. 213-433-5577.

NORTHROP NEWS

Vol. 30 **No. 11**

Published monthly by Northrop Corporation Employee Communications.

Managing Editor, Rosemary Hussey; Editors: Ivy Edmonds, Electro-Mechanical Division; James Lassiter, Aircraft and Electronics Divisions; Correspondents: Dale Albee, Architectural Systems; Peter Goodall, Precision Products Department.

Mailing address: Northrop News, 170/40, Northrop Corporation, 3901 W. Broadway, Hawthorne, Calif. 90250. Telephone: (213) 675-4611, ext. 4273.

NOTICE

Due to space limitations, rental advertising will no longer be accepted. Exceptions are bona fide transferees who wish to sell or sublet their homes or apartments or new employees who are seeking housing.

ON DISPLAY at the American Society of Clinical Pathologists Fall Convention is the BSL Medical and Business Data Systems. BSL is a subsidiary of Northrop.

CHRISTMAS GIFT PROGRAM REACHES WAY OUT TO SHARE WITH OTHERS

Each year it has been a rewarding success for everyone concerned, and plans for an even more successful program this year are under way as the annual year-end holiday approaches.

This is the Electronic Division's Christmas Gift Program, traditionally one of Northrop's most spontaneous efforts whereby employees voluntarily turn their thoughts to helping and sharing with others less fortunate at Christmas time.

It provides a means for those who wish to take part to give or help as he or she desires. This year, as in past years, it is suggested that employees support this program rather than exchange gifts and Christmas cards within their own organization. Again, the choice is voluntary, but the success of this program depends wholly on people wanting to help people, and most Northrop personnel want to help and they do!

Organizations wishing to adopt a family should contact Ila Melger, program chairman, ext. 425, Hawthorne, beginning Nov. 27.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Ski Club Plans European Trip

The Northrop Ski Club will once again sponsor a bargain-priced ski trip to Europe as its major activity this winter, Dick Baggett, Ski Club commissioner, has announced.

The trip will be held in late January and early February. Skiers will fly to Geneva and stay at a hotel in Chamonix, France, for a week of skiing. The package will include round trip jet transportation, seven nights' lodging, seven days of meals, ground transportation to and from the hotel, and a lift pass. The price is targeted at $378 per person. Exact dates and costs will be determined as plans are finalized.

Reservations and deposits of $50 per person are being accepted now. For further information contact Mr. Baggett at ext. 541, Hawthorne.

VERSATILE UNITS

Future In Data Systems

BSL (Berkeley Scientific Laboratories), a subsidiary of Northrop, under direct supervision of the Electronics Division, gave a premier showing of their Medical and Business Data Systems.

The exhibit was displayed at the American Society of Clinical Pathologists Fall Convention held Oct. 16-19 at the San Francisco Civic Center.

Future exhibits will be utilized by BSL at various trade shows throughout the country to present their equipment to potential customers.

To accommodate space limitations at different trade show locations, the BSL exhibit features modular capability. It was specifically designed for versatility, allowing BSL to present the systems in areas of 10-80 feet in width.

Wilcox Electric Displays Omega At Convention

Wilcox Electric, Inc., avionics subsidiary of Northrop, showed a working unit of the Electronics Division-developed Omega navigation system at the National Business Aircraft Association Convention, Sept. 12-14, in Cincinnati, Ohio.

The ARN-99 Omega system on exhibit was developed by Electronics under contract to the Naval Air Systems Command. The U.S. Navy has selected similar Omega units for its P-3C anti-submarine and C-9B logistics transport aircraft and a marine version of the same system for installation in most U.S. submarines.

HE'S been at it for 30 years. Harry Clark, left, Employee Relations advisor, Electronics Division, receives his 30-year pin, T.V. and congratulations from David N. Ferguson, general manager.

SCHOOL'S OUT FOR TECHNICIANS

Eight Air Force technicians assigned to the San Antonio Air Materiel Area, Kelly Air Force Base, have completed a three-month training course in maintenance procedures for the Northrop Inertial Doppler Navigation Equipment (IDNE) used in the giant C-5A cargo transports. Classes in depot overhaul of sub-assemblies were conducted by Ray Rakes, Dick Collins, Deo Terry, Richard Oppenhiemer, Fred Macary and Andy Demetry, all of the Electronics Division Field Service and Training.

Lesson plans for the course, were prepared by D. R. Winters, Field Service and Training engineer.

AIR FORCE graduates of a three-month school conducted by Northrop at Kelly Air Force Base are shown here with two of their instructors, Ray Rakes, seated, and Dick Collins, standing, third from right.

SERVICE AWARDS FOR THIS MONTH

Employees receiving 10-year service awards at Hawthorne this month were Jessie Moore, Charles Lombardo, Marilyn Jahnz, Clifford Ross, Charles Hartley and Louise Bennett. Palos Verdes recipients were Robert Good, Robert Exline and Kenneth Fish.

Five employees from Hawthorne received five-year service awards. They were Carl Shuravlev, Philip Schneider, William Harden, Richard Larson and Elizabeth Wooldridge.

NORTHROP NEWS

Aerospace Outlook—President Jones

The outcome of 10 key government programs with a potential of $16 billion over the next six years could mean success or failure in the future for Southern California's aerospace industry, according to Thomas V. Jones, Northrop president, appearing at the 1973 Los Angeles Chamber of Commerce Business Outlook Conference.

Speaking on "The Aerospace Outlook for 1973—And Beyond," Mr. Jones said, "In the defense and space fields, there are some 10 government programs which mean a great deal now—and will mean a great deal more over the next five or six years—to the economy of Southern California."

The B-1 bomber, Space Shuttle, Northrop's A-9A, Lightweight Fighter and F-5E International Fighter, Maverick and Phoenix missiles, S-3A and P-3 anti-submarine aircraft and Trident Submarine-launched missile are the top 10 on-going government space and defense programs in Southern California, according to Mr. Jones.

"If all of these programs go as planned, they represent about $16 billion over the next six years, of which about $2 billion would come in 1973. Because of the amount of this that would be spent in other states—for engines and other equipment, and for subcontract work — it is estimated that about 60 per cent of the total would remain in California, or about $10 billion over the next six years and about $1.2 billion in 1973," he said.

Mr. Jones added that the termination of the war in Vietnam will not materially affect the Southern California aerospace industry since it has not been significantly involved in supplying equipment for that conflict.

He noted that the industry's greatest opportunity in the future lies in the area of exports. "Our advanced technology is competitive with suppliers throughout the world, and given access to these markets, we can compete. The important thing here to remember is that we recognize that we are dealing with sovereign nations, many with industries of their own, and that if we are to contribute to their defense it must be on the basis of cooperation rather than confrontation," he pointed out.

Commenting on the aerospace employment picture, the chief executive said, "There is a growing tendency on the part of other sections of the country to protest the share of defense business that comes to California and to demand a larger share for themselves," he declared. "This percentage of business is here because it was the Pacific Coast, and California in particular, that supplied the scientific and technical know-how that built up our national security and the space programs when they were needed, and it was our people who took the brunt of the lay-offs when the cutbacks began."

Mr. Jones emphasized that "the case for the geographic distribution of defense work is not valid."

On the civil front, he predicted that there will be increasing opportunities for the solution of the problems of the economy and the society, and that aerospace will make an increasing contribution in that field.

Board of Directors Promotes Two Northrop Executives

F. W. "Bob" Lloyd has been elected to the board of directors of Northrop Corporation, Thomas V. Jones, president and chairman, announced.

Mr. Lloyd is senior vice president-Operations for Northrop. He joined the company in November 1941 as an assembler, and progressed steadily through the positions of general foreman, assistant superintendent of Production Control, superintendent of Manufacturing Control, assistant factory manager, general superintendent, director of Manufacturing Engineering, and vice president-Manufacturing.

Prior to being named to his present position, Mr. Lloyd served for five years as vice president and general manager of the Aircraft Division, the company's largest operating component. His development and implementation of advanced technology manufacturing methods enabled Northrop to become one of the lowest cost-per-pound manufacturers in the aerospace industry.

In other action by the board of directors, Mr. Jones announced the election of David H. Olson as secretary of the corporation.

Mr. Lloyd

Mr. Olson

Mr. Olson joined Northrop in 1967 as assistant secretary.

Mr. Olson received his A.B. degree from the University of California at Los Angeles and his J.D. degree from the University of California at Berkeley. He served in the U.S. Air Force from 1959 to 1961, attaining the rank of captain. He is a member of the State Bar of California, American Bar Association, Los Angeles Bar Association, Lawyers Club of Los Angeles and the American Board of Trial Advocates.

Mr. Olson's election will provide George Gore, secretary of the corporation since 1945, "with more time to devote to his duties as corporate vice president and general counsel," according to Mr. Jones.

SLATE SET FOR NORAID OFFICERS

Dan O'Halloran has been named chairman of the board of directors and Doug Leavenworth, president of NORAID, Northrop's in-house charity program, at a meeting last month.

Mr. O'Halloran, Paul Jacobs, C. W. Benson, M. K. Lowe, Willard Lindstrand, Frank Mathes and Sal Xifo, represent the Aircraft Division; Mr. Leavenworth, Electro-Mechanical; Lloyd Jones, Electronics; and Frank Smith, the Corporate office, on the board.

Mr. Xifo serves as vice president; Ernie Boren, treasurer; Marie Tully as secretary and administrator; and Rudy Rivero, accountant, for the coming year.

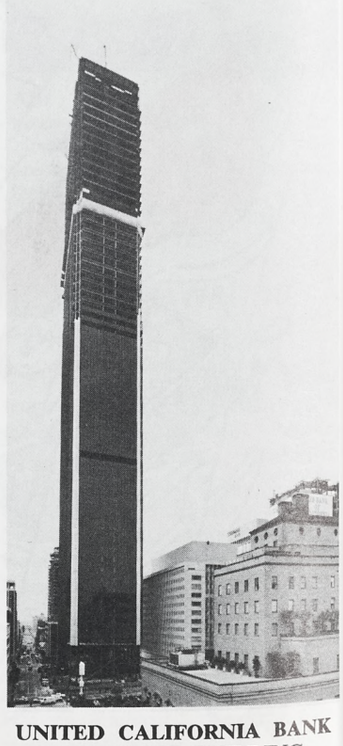
NAS Installs Curtainwalls in Tallest Building in Downtown Los Angeles

Northrop Architectural Systems, City of Industry, is busy putting together portions of the tallest building west of Chicago. The Custom Products Division of NAS, under a $3 million contract to United California Bank, maintains a 65-man crew installing the curtainwall portion of the new UCB corporate building.

Located in downtown Los Angeles, south of Sixth Street, north of Wilshire, west of Hope and east of the Mobil Oil Company, the UCB building will rise 62 floors above ground, 858 feet high. It is 10 stories higher than any other building in the Los Angeles area; the second tallest structure being the Richfield Towers at 52 floors. The structure itself will be 180 feet wide, 119 feet deep, and will require 100 miles of aluminum extrusions and approximately 12,200 lites of glass or about 1¼ million pounds. The titanic wall area if laid flat would cover more than 10½ football fields.

Sections of the curtainwall were tested for air and water infiltration last January at the University of Miami. The building, which tapers 5 feet inward from top to bottom all around, will also support 18 miles of vertical mullions, and 93,000 square feet of aluminum clad sheets on its corners.

NAS, maintaining services and products all over the free world, plans to complete the curtainwall portion by summer 1973.



UNITED CALIFORNIA BANK CORPORATE BUILDING

P-600 NOW YF-17

Northrop's Lightweight Fighter (LWF) prototype aircraft, originally called the P-600, is now the YF-17 as designated by the U.S. Air Force. In April of this year, Northrop received a contract to build two prototypes and the aircraft are expected to fly in early 1974.

Young Lady Honored As Outstanding English Student

Carol Ann Beuchat, daughter of Chuck Beuchat, Training specialist with the Aircraft Division, is an exceptional young lady in that she has been cited as one of the outstanding high school students of English in the country.

The National Council of Teachers has named the 17-year-old Gardena High School student a 1972 finalist in its annual Achievement Award competition.

Miss Beuchat

In the competition, each student submitted samples of their best writing, including an autobiographical sketch, and wrote a one-hour impromptu essay. The writings were evaluated by college and high school English teachers directed by state coordinators.

Approximately 7,200 juniors participated in the contest, and 870 finalists were chosen representing 50 states, the District of Columbia, and American preparatory schools abroad.

Carol is a candidate for a college scholarship in 1973, and her name has been sent to admissions officers and English department chairmen at junior colleges, colleges and universities.

Discounts Offered By Sports Club

Northrop employees now can enjoy more than 50 of Southern California's sports and entertainment events at half the regular price.

Personnel Activities has made arrangements for personnel to become members of the Two For One Sports Club, Inc. for $5 which is a savings of $1 on the regular $6 price. This family package is valued at over $250 and will enable you to see the Los Angeles Lakers, Los Angeles Kings, Forum Boxing, Western Harness Racing, Riverside Auto Racing, Glen Campbell Los Angeles Golf Open, Ringling Brothers Circus and many more events.

For further information contact Aircraft Division Personnel Activities, ext. 2486.

COOKBOOKS

This is your last chance to buy the Northrop cookbooks which went on sale early this month.

The books are $2.50 and are available at any Personnel Activities office.

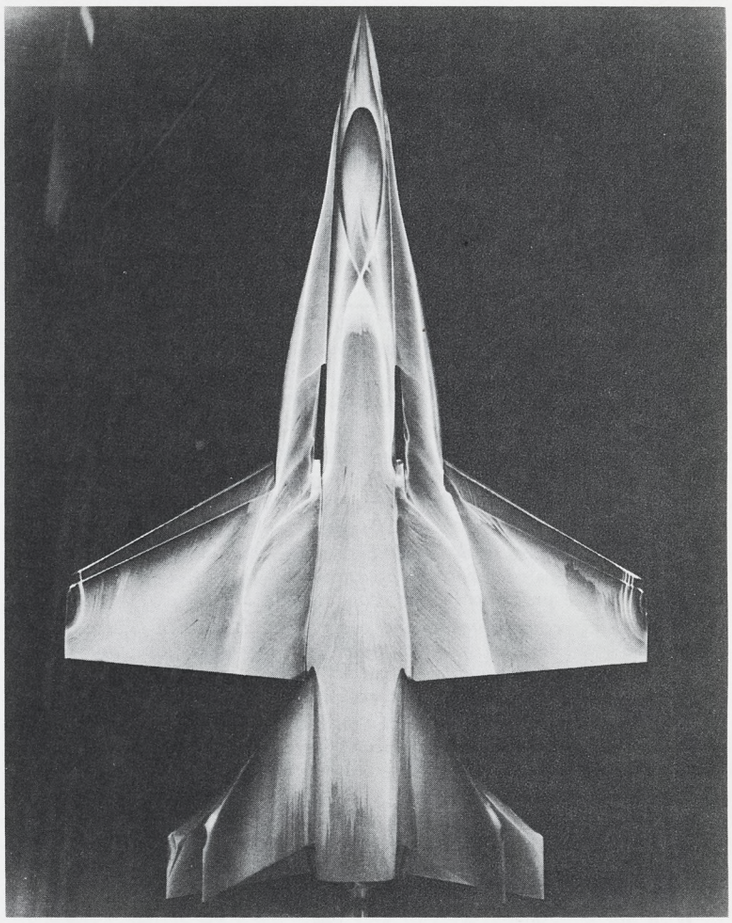
The cookbooks contain recipes submitted by employees, and proceeds from the sale support several Northrop charities.

DR. HICKS ELECTED

Dr. D. A. Hicks, vice president, Research and Technology, has been elected vice chairman of the Aerospace Technical Council of the Aerospace Industries Association.

The Aerospace Technical Council is the industry's top level technical advisory body through which broad technical and management problems affecting both government and industry are reviewed and solutions sought.

BOB PATCHIN, Aircraft Division, left, explains Northrop's work on the Boeing 747, in background, to Mayor and Mrs. Edward McNamara of Livonia, Mich., during the couple's recent visit to California. Guiding Mayor and Mrs. McNamara on their tour of Northrop facilities is Don Foulds, right, vice president, Olson Laboratories. Olson, a Northrop subsidiary, will shortly begin operations in a new vehicle emission test center in Livonia.



ULTRAVIOLET light and a mixture of oil combine to indicate air flow around a wind tunnel model of Northrop's P-530 Cobra air superiority fighter. The Cobra is being developed as a proprietary Northrop effort for use by free world nations.

IN LEISURE TIME

Carlson in AFCEA, Scouts

Richard A. Carlson, Facilities and Communications specialist for Northrop Data Processing, has been elected secretary of the Armed Forces Communications and Electronics Association. Mr. Carlson will maintain all records and correspondence for the AFCEA which specializes in communications with the Armed Services.

During his leisure time, scouting is his primary activity; in fact he's been a part of scouting for 39 years. At present he is a member of the Executive Committee for the Orange County Boy Scouts of America.

Mr. Carlson will be one of the camp directors at the National Scout Jamboree West in 1973, at Farragut State Park, Idaho. Forty-two thousand scouts will be on hand for the event.

NEWTON 'BUD' LINDSEY, Quality Assurance technician, Ventura Division, explains destructive testing technique to members of the Pierce College evening class in Quality Engineering. The class is taught by Anthony F. Fortuna, Quality Assurance project leader for Marine Systems at Ventura Division. Mr. Fortuna has been instructing for 25 years, the last 15 on the college level.

Season's Greetings

To the Men and Women of Northrop:

The holiday season is traditionally a time for retrospection and resolution, and we at Northrop have much to be thankful for as well as much to look forward to.

We have received worldwide recognition for our creative technology and production competence in fields ranging from aerospace to architecture, from communications to ecology, and from clinical pathology to transportation.

Prospects for peace in the world are greater than ever, and with those prospects come ever increasing opportunities for us to contribute to the solutions of the problems of our economy and our society.

With these accomplishments and goals in mind, I would like to thank each and every one of you for your part in maintaining our long-established Northrop traditions, and to express my optimism for our continued and ever-improving success in the future.

Mrs. Jones and I wish each of you and your loved ones the most joyful holiday season, and the peace, joy and good fortune you so richly deserve.

Thomas V. Jones
President

To Electronics Division Personnel:

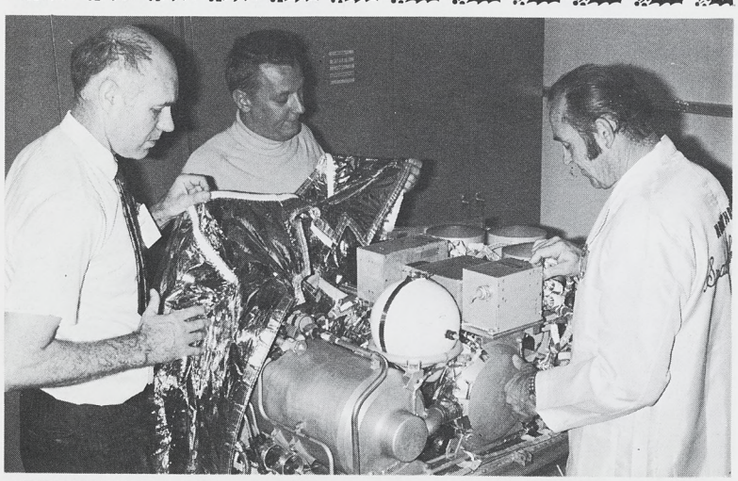
With our most joyous time of year just around the corner, I think it timely that, amidst the spirit and happiness of the holidays, we pause for a moment to reflect on our personal achievements over the past 12 months.

In many cases, personal achievements have been realized time and time again here at the division, in the performance of our jobs. In large part, these individual and collective accomplishments, I believe, are responsible for the continuing growth we have experienced at Northrop Electronics during 1972, and for the bright future awaiting us in the coming year.

To every man and woman throughout our fine organization, I extend my personal thanks for all you have done to enhance our division's capability.

Please accept my very best wishes for a truly Merry Christmas and the happiest of New Years.

David N. Ferguson
General Manager



REMOVING A 24-karat gold-plated thermal blanket from the mice and gnat experiment package are, from left, Merl Fairchild and Robert Hartmann, engineers, and Jim Schuessler, technical specialist. See story above.

Astrognats And Cosmomice Scheduled For Skylab Shot

For quite some time now, pocket mice and vinegar gnats have been a concern of the Electronics Division in testing a premise that some "pervasive geophysical force" does entrain the circadian periodicity of organisms.

Living things seem to be able to tell time, even when shielded from encompassing changes in light, temperature, pressure, chemistry and humidity. Northrop personnel have been devoting long hours in hopes of unfolding this mystery, by observing what happens to six pocket mice and 720 vinegar gnats in the weightless environment of NASA's Skylab, scheduled for launch in July 1973.

Life Support System

The Circadian Periodicity Experiment, designed and built by the Electronics Division, provides the life support system to maintain the biological specimens in accurately controlled temperature, pressure and humidity while monitoring their circadian (24-hour) rhythms.

Two experiment packages have been rigorously tested and qualified for flight on Skylab, and they are now being readied for shipment to Kennedy Space Center in Florida just prior to Christmas.

Merl Fairchild, project engineer, and Robert Hartmann, engineer, will follow the experiments and support the system checkout with the launch and flight activities. While one experiment is launched into weightlessness in space, the second duplicate unit, also loaded with mice and gnats, will be used as a ground control experiment to collect comparative data in a one-g environment.

The experiment chamber, an Environmental Control System (ECS), will provide a habitable environment for the specimens whereby they will be kept in constant darkness and isolated from sound and smell sensations. Continuous measurements, at 10-minute intervals, will be made of their (mice) body temperature, activity levels, and heart rate by means of telemeters implanted in their brain. At the same time, the vinegar gnat experiment will

(See SKYLAB, page 5)

TRIP AVAILABLE TO THE ROSE PARADE

Round trip transportation and reserved grandstand seats are available for the Tournament of Roses Parade in Pasadena, Monday, Jan. 1, 1973.

Two 45-passenger buses have been chartered for Electronics personnel and their families, and 90 grandstand seats, located on the front lawn of Pasadena City College, are reserved. Total cost of the package is $10 per person, which does not include the afternoon Rose Bowl game.

Boarding time is 6:30 a.m. at Gate 5, Aircraft Division, with departure at 6:55 a.m. If you wish to bring your lunch, fine, but there will be a snack bar near the stands. Tickets are available now only at the Aircraft Personnel Activities office, ext. 2486.

Creative Thinking Pays Off For Six

Suggestion awards amounting to $300 have been given to six Electronics Division employees for their creative ideas.

At the Hawthorne facility, D. R. Winters, Field Services and Personnel Subsystems, was awarded $100 for designing and building a C-5 IMU Bellows Measuring Tool; B. H. Anderson and D. L. Hatfield, Precision and Receiving Inspection and Testing, $67.50 each for developing a time saving adapter for the Cordax Measuring Machine 30X scope; E. L. Smith, Maintenance, $40 for a time-delay device for saving liquid nitrogen; W. T. Thomas, Jr., Assembly and Test Inspection, $15 for a plexiglas cover for a Running Time Meter; and C. L. Goodwin, IMU Repair, $10 for protective nylon fasteners for "in-house" optical window covers.

Leiboff Presents Paper To Panel

The Avionics panel of the Advisory Group for Aerospace Research and Development (AGARD) meeting at Wright-Patterson AFB recently heard a paper presented by Teague Leiboff, Business Development manager, Advanced Technology, on "Automated Acquisition and Tracking Methods Employed in JIFDATS."

THE ELECTRONICS Division of Northrop has donated six audio-visual machines to the Downey Unified School District, for use by East Junior High School. The equipment was originally valued at more than $2,600. According to Hal Janssen, director of Industrial Relations, the equipment had been declared "surplus" to the needs of the company. "When, on occasion, such equipment is no longer necessary to meet our requirements at Northrop, we are delighted to see it utilized by some worthwhile organization," commented Mr. Janssen. From left, James Lemon, Industrial Education instructor; Kenneth R. Lopour, principal of East Junior High; and Mr. Janssen.

Avionics Reorganizes For Growth

As a result of the substantial growth which has taken place and in anticipation of additional growth of the Avionics Department product lines, L. Kaufold, vice president and manager of Avionics, has announced a reorganization of the department.

Several organizations have been established, each with responsibilities for program management, marketing and engineering in major product areas:

Navigation Department, Organization 4700, K. F. McCready, manager; Tactical Avionics Department, Organization 4600, A. A. Beeler, manager; Special Projects Department, Organization 4500, A. G. Taie, manager; Advanced Systems Department, Organization 7000, Dr. V. W. Howard, vice president and manager; Avionics Operations Section, Organization 5800, R. E. Stone, director; Avionics Engineering Support Section, Organization 4800, C. L. Bose, director; Advanced Technology Office, Organization 4080, W. G. Edwards, director; Administration and Control, Organization 4300, H. Frankenberg, director; Business Development Office, Organization 4006, is discontinued.

Northrop Realigns Division For Increased Potential

Northrop Corporation has announced that it is combining the Defense Systems Division of The Hallicrafters Company and Warnecke Electron Tubes, Inc., with the Electronics Division.

In making the announcement, President Thomas V. Jones noted that the realignment "will more fully utilize the corporation's technical and management capabilities in the electronics countermeasures business."

The Hallicrafters Company, Rolling Meadows, Ill., is a wholly owned subsidiary of Northrop; Warnecke, headquartered in Des Plaines, Ill., is 89 per cent owned.

"While the primary responsibility for development and conduct of Northrop's military countermeasures business will remain in the Chicago area, the considerable technical resources in this field of the Electronics Division will be brought to bear more effectively through this team effort," Mr. Jones said.

He added that the move will free Harrison Van Aken, Hallicrafters president, and his technical and management team to pursue their equally important areas of civil and military communications business. "I am confident that all product areas will benefit by the new arrangement," Mr. Jones stated.

Dr. Donald Wahl, vice president, Defense Systems Division, and L. R. Grohe, president of Warnecke, will report to D. N. Ferguson, vice president and general manager of the Electronics Division.

NRC HOSTS NEW YEAR'S EVE PARTY

The Electronics Division NRC is sponsoring a gala New Year's Eve party-dance Sunday, Dec. 31, at the NRC Clubhouse, 12329 So. Crenshaw, Hawthorne.

Party time is 9 p.m., and the refreshments, noisemakers, hats and snacks are provided by NRC. Tickets are available at Personnel Activities or at the clubhouse door.

Skylab

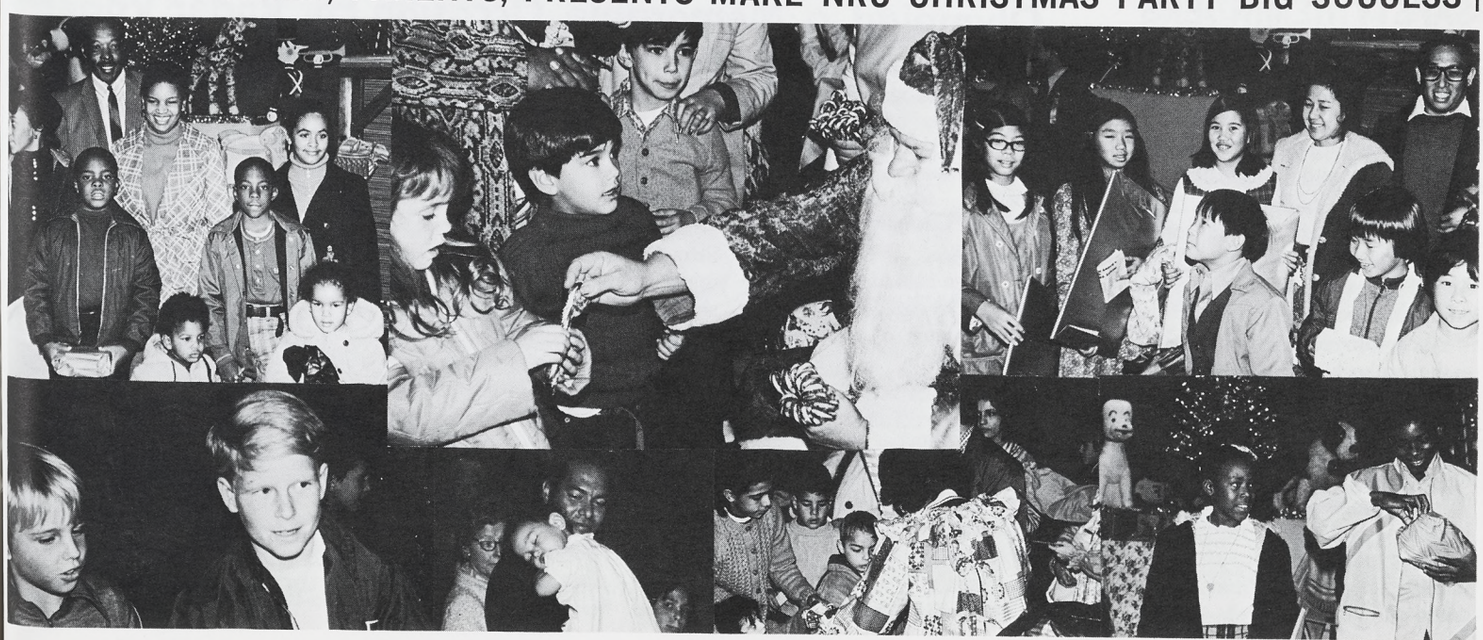
(Continued from page 4)

be carried out in special containers housing 180 pupae each. An elaborate Circadian Data System will measure the gnats' circadian rhythm by timing the interval between periodic eclosions or hatchings.

Dr. Robert Lindberg, senior research scientist, and Page Hayden, associate research scientist of the Corporate Biological Sciences Laboratories, provide the pocket mice, biological criteria and data interpretation.

Presumably, if both mice and gnats maintain their normal circadian rhythms, it may be concluded that geophysical forces (space conditions) may not impose stresses on man's performance in space.

SANTA—CHILDREN, PARENTS, PRESENTS MAKE NRC CHRISTMAS PARTY BIG SUCCESS

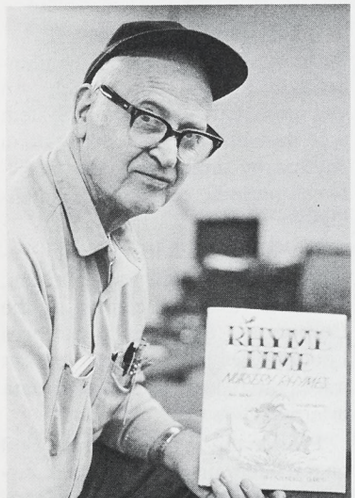


Ehret Finds Sketching Nursery Rhymes Relaxing

Wendell Ehret, Aircraft Division, has worked for Northrop for over 23 years, most of this time at metal bonding. During coffee breaks he is likely to sit down with a pencil to create rhymes and sketch pictures.

Most of his sketch work is of little children and a variety of animals that float around in his imagination. Children, pigs, wolves, lions and monkeys, frogs and birds and insects, they all relate with his clever verses and can now be found in a book of nursery rhymes, RHYME TIME, recently published by Vantage Press, and illustrated in color by Wendell. "Most of the creations in the book don't really have a moral or convey any sort of a lesson, as they are strictly fun, pure and enjoyable," he said.

Wendell never went to an art school, but learned to draw through a correspondence course. He worked for a while in a movie cartoon studio prior to World War II and since then many of his drawings have been published.



WENDELL EHRET finds relaxation in creating rhymes and sketching pictures during coffee breaks.

CHRISTMAS EDITION COVER

The 1972 Christmas edition cover of the Northrop News shows, through the window, the Boy Scout Troop 262 Christmas tree lot with Raymond and Glen Van Heel, and Loretta and Danny Williams.

Troop 262's Christmas tree sale is sponsored by the Northrop Recreation Club, Aircraft Division.

Artwork was done by Thad Roark, and the photography by Dave Saldana.

TOASTMASTERS

Northrop Toastmasters Club 212 will celebrate its 20th anniversary Jan. 13, 1973. All former Toastmasters are urged to contact Hank Greenberger, Electronics Division, ext. 647 or Charlie Ferraro, Aircraft Division, ext. 5107.

NUMBER ONE. Mike Evans, Aircraft Division, with his car and first place trophy he won at the Long Beach Custom Car and Motorcycle Show in October. Photo by Thurman Sharp.

IN SPORTS CAR SHOW

Evans Takes First Place

Mike Evans, Aircraft Division, captured a first place trophy for best all-around American sports car at the Long Beach Custom Car and Motorcycle Show held Sept. 29 through Oct. 1. Mike personally did the customizing and painting on his 1964 Corvette Stingray in preparation for the competition.

He used acrylic lacquer paint with a pearl white base, airbrushed orange fans, top coated with candy apple red and blue murano. The hood scoop is tiger-striped with candy gold, yellow, orange, and candy red gold. Three months of preparation and labor went into his car before the paint was even applied. He then sprayed 3½ gallons of primer on the car, hand-sanded the entire body, and used five gallons of paint to come up with his prize winning creation.

Mike said, "there's a lot to know about the different types of paint and their application, and only through hard work and experience can someone put together something really nice." He has a variety of spray guns, but his favorite is the airbrush which he used to do most of the detail and ornamental work.

One of Mike's custom paint jobs was on a motorcycle that broke the world speed record in its class at the Bonneville Salt Flats during August 1972.

SAFETY REMINDERS FOR THE HOLIDAY

One of the most eagerly awaited times of the year — Northrop's traditional long yearend holiday —is just around the corner.

With these happy times coming up, there are always certain precautions that should be observed to make this a safe and enjoyable period of time.

All employees are reminded to make a check of their work area prior to departing for the holiday. Christmas decorations should be removed from the premises prior to the close of shift on Dec. 22. Typewriters, coffee pots, adding machines and other electrical appliances and machinery should be unplugged. Files, cabinets and desks should be locked.

Olympiad a Memorable Occasion For Roger Vogel

Roger Vogel will always remember the past summer as the most memorable of his life. At 19 he attended the 20th Olympiad at Munich as the official photographer for the famous Puma Shoe Company of West Germany.

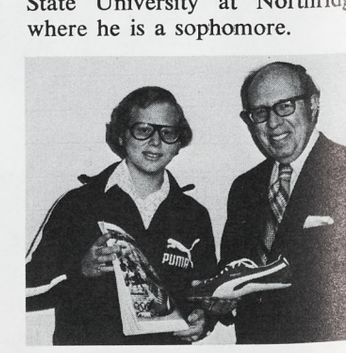
Roger is the son of Electronics Division's Al Vogel, who is the chief of Diagnostic and Safety Systems.

Taking a page from his father's book on resourcefulness, Roger travelled to Eugene, Ore., last spring to attend the U. S. Olympic trials. At Eugene he convinced Armin Dassler, president of Puma Shoe, that Roger Vogel was the photographer for Puma. As a result, Puma paid Roger to attend the Olympics and take photos of athletes wearing Puma shoes.

Some of his outstanding photos showed Dwight Stones, U. S. high jump bronze medal winner, Randy Williams, U. S. long jump gold medal champion, and Bob Seagren, U. S. pole vault silver medal winner, all wearing Puma shoes. Another exciting shot showed four Puma-clad U. S. runners burning up the track.

But the most exciting photo of all for Roger was the one he took of John Akii-Bua, of Uganda, setting a new world record for the 400 meter intermediate hurdles. Roger shot that photo from the twenty-fifth row of the stadium, using a 300-millimeter lens on his Nikon F-2 motor driven camera, and the Puma "curl" on Akii-Bua's shoes came through bright and sharp.

When he isn't taking pictures or preparing for the 1976 Olympics, Roger attends California State University at Northridge, where he is a sophomore.



ROGER Vogel with father, Al Vogel.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Dodge, 1970 Challenger, AM-FM stereo, p/s, p/b, $2,000. 213-675-7835.

Ford, 1964 Fairlane 500, auto., V-8, r/h, 70,000 mi., $250. 213-835-2328.

Hornet, 1971, 9,000 mi., 232 c.i.d., 6-cyl., 3-spd., radio, $1,750. 805-482-6945.

Chevrolet, 1965 Malibu, p/s, p/b, a/c, r/h, $475. 213-674-1367.

Dodge, 1968 Polara, a/c, p/s, p/b, auto. trans., 74,000 mi., bids close Dec. 21, min. bid $800. Credit Union, ext. 1117.

Chevrolet, 1967 Supersport 396, $1,300. 714-839-6029.

Renault, 1959, $75. 213-323-7171.

Chevrolet, 1964 Impala, 4-dr. h/top, a/c, auto., p/s, p/b, $795. 213-644-6658.

Falcon, 1965, 2-dr. stick, new clutch, trans. & brakes, $300. 213-454-1963.

Camaro S.S. 350, 1969, 4-spd., a/c, $2,200. 213-379-8248.

VW Camper, 1968, w/pop-top, a/c, AM-FM radio stereo, many extras, $2,895. 213-375-2091, 213-375-9397.

Pickup, 1963 GMC, ¾-ton, 8′ Aero Flight camper, full cabover, $2,000. 213-370-6896.

Oldsmobile 88, 1962, $175. 213-372-6916.

Midget MG, 1968, $800. 213-672-8490.

Pickup, 1971 Chev. ½-ton, 8′ wood bed, V-8, 10,000 mi., $2,600. 714-551-3844.

Chevelle, 1967 Malibu, 2-dr. h/top, 283 eng., auto. trans., p/s, $595. 213-248-1397.

Opel G.T., 1970, 4-spd., $1,800. 213-379-8796.

Dodge, 1967 Coronet 500, 2-dr. h/top, auto. trans., p/s, a/c, r/h, 383 cu. in. V-8 eng., $1,050. 805-643-6955.

Station Wagon, 1969 Pontiac, air, power, 3-seat, many extras, $2,400. 213-375-8536.

Truck, 1965 ¾-ton Chev., 283 V-8, hvy. duty equipped, 2 extra gas tanks, $995. 213-324-7637.

Station Wagon, 1964 Chevelle, 3-spd. manual trans., 283 eng., $150. 213-372-5508.

Pickup, 1967 ½-ton Chev., V-8, big tires, w/Weekender camper, sleeps 6, $2,600. 714-524-9688.

Porsche, 1964, reblt. trans., eng., $2,800. 213-322-7376.

Mustang, 1969 Mach I, 428 cu. in., C-6 auto., $1,400. 213-862-4406.

T-Bird, 1960, reblt. eng., 4 new recaps, $350. 213-375-4786.

Mustang, 1967, V-8, auto. trans., AM-FM, 60,000 mi., $490. 213-534-2487.

Chevrolet, 1963 Impala, 4-dr., auto., p/s, p/b, $300. 213-675-7915.

Chrysler, 1968 300, 2-dr., auto. trans., p/s, p/b, a/c, $1,750. 213-676-9953.

Cadillac, 1960 Cpe. de Ville, full power, w/ removable air cond. unit, use in other autos, $235. 213-676-1580.

Chevrolet, 1964 Malibu SS, Hurst, hi-perf. 327, new reblt., $800. 213-324-5719.

Olds F-85, 1966, auto., a/c, stereo, extras, $500. 714-644-1195.

Ford, 1971 LTD Brougham, p/s, p/b, AM-FM stereo radio, a/c, $3,000. 213-926-7624.

Mercury Comet, 1963, 6-cyl., 4-dr., r/h, 3-spd. stick, $300. 213-329-3900.

Pickup, 1969 Chevrolet, ½-ton, custom cab, fact. air, p/s, 396 eng., Gem top, $2,375. 213-671-6345.

Continental, 1964 4-dr. sedan, all leather int., fully equipped, $650. 213-882-0761.

Ford, 1965 Country Squire, 6-pass. station wagon, r/h, p/s, p/b, roof rack, $695. 213-375-5838.

Chevrolet, 1965 Impala, 396, 4-dr., p/s, p/b, a/c, $450. 714-522-2740.

Pontiac, 1968 Firebird, full power, a/c, AM-FM radio, $1,000. 213-360-1377.

Miscellaneous For Sale

Ventilator Fan, 243 s.p. aerofan, wall-type, in orig. carton, $20. 213-379-4517.

Wheels, 4, Austin Healey, 60 spokes, $20 ea. 805-495-3163.

Mobile Home, 12x60, in 5-Star Park, carport, 8′x36′ enc. patio, 2-bdrm. & den, 1½ baths, $5,400. 213-532-1344.

Organ Discs, Optigan, 8, $20. 213-327-4585.

Miscellaneous For Sale

Chord Organ, Magnus elec., $20. 213-675-7965.

Guitar, $25. 213-377-6648.

Cemetery Lots, 2, in Rose Hills Memorial Pk., Whittier, $500. 213-377-6460.

Bicycle, Schwinn Apple Crate, $65. 213-376-3569.

Adding Machine, Royal, Office Master elec., 10-key, never used, $75. 213-278-7550.

TV, 24″ color Magnavox, console-type, $210. 213-939-8053.

Target Rifle, Remington Rangemaster Mod. 37, .22 cal., Redfield scope, case, access., $130. 213-631-6480.

Typewriter, Underwood std., $40. 213-676-4464.

Cuckoo Clock, musical, German import in orig. carton, $50. 213-671-0756.

Utility Trailer, suitable for 3 motorcycles, $120. 213-830-5225.

Jacuzzi, for bathtub, Everest & Jennings, $175. 213-375-2127.

Bar, custom, 3 yrs. old, 4 padded stools, formica maple, 2 shelves, $200. 213-542-7197.

Dog, basset hound, AKC reg., 2 yr. old male, $25. 213-325-5859.

Utility Trailer, 14′ long, 1947 mod., $75. 213-679-4144.

Engine, 348, complete, incl. tri-power set up, $100. 213-644-5926.

Golf Clubs, 1972 Titlist, 1, 3, 4 & 5 woods, 2-9 irons, pitching wedge, $325. 714-879-5356.

TV, walnut cabinet, remote control, b/w, 20″, $75. 213-324-4475.

Washer & dryer, $75 or sell sep. 213-676-3050.

Engine, 1966 Corvair Spyder, 19,000 mi., all access., $275. 213-378-4991.

Chord Organ, elec. Magnus, table mod., $10. 213-675-6397.

Surfboard, Greg Noll, 6′11″, $60. 213-371-3769.

AM-FM-MFX, Emerson, w/2 8 ohm spkrs. & Soundesign 8-track, w/3 unopened tapes, $100. 213-374-7055.

Receiver, 75A-2 Collins, $100. 714-835-1124.

Guitar, Gibson, EB-O bass, case, $190. 213-824-2352.

Motorcycle, 1970 Kawasaki 250 c.c., street legal, many extras, $425. 213-645-4697.

Surfboard, 6′8″, roundtail, $50. 213-823-1788.

Transmission, auto., fits Falcon & Comet, $35. 213-328-3306.

Radio, Pace 2-way, 23-channel, almost new, $80. 213-676-8109.

Sweater, black fur, $30. 213-375-5237.

Shoe Rink Roller Skates, ladies, white, size 8, $6.50. 213-545-1631.

Motorcycle, 1971 Norton 750 cc, less than 3,000 mi., $1,100. 213-376-9047.

Dressers, 2 white provincial, $75. 213-326-3136.

Weightlifting Set, Paramount, press bench, bar bell, 4 dumb bells, assorted wts., $50. 213-431-9968.

Motorcycle, 1964 Triumph 500 cc chopper, $600. 213-860-4221.

Crib, white, w/mattress, $25. 213-926-7474.

Movie Camera, Kodak elec. 8, battery powrd., auto. exp., $49. 714-892-5801.

Bicycle, girl's Schwinn Sting Ray, coaster brake, $20. 213-376-2190.

Oven, Roper, dble., self-cleaning, $250. 213-889-0191.

Guitar, elec. Fender Mustang, case, $95. 213-833-5755.

Baby Items, 5 pieces, $25. 213-780-7476.

Dressing Table, baby's, $17. 213-675-6020.

Motorcycle, 1970 Yamaha, 250 twin, 3,600 mi., street mod., $350. 213-644-3874.

Console, Philco Estereo, AM-FM, record player, 2 yrs. old, $100. 213-547-1328.

Movie Camera, Bell & Howell, reg. 8, projector, screen & editor, $75 or sell sep. 213-679-6982.

Rocker, swivel, green velvet, $90. 213-644-4656.

Tape Recorder, Sony, video, $400. 213-329-1664.

Cocktail Ring, rubies and turquoise, 14K gold, custom designed, $100. 213-545-2577.

Movie Projector, 8mm Revere, $20. 714-523-5315.

Stroller, other baby items, $.50-$10. 213-329-6091.

Saxophone, Noblet tenor, $100. 213-423-1363. 213-675-4239.

Miscellaneous For Sale

Bicycle, English 10-spd., $60. 213-638-4954.

Desk, metal, youth's, w/typewriter table, $10. 213-675-4239.

Golf Clubs, 3 woods, 9 irons, $55. 213-372-1778.

Living Room Set, 3-pc., naugahyde, $30. 213-370-5031.

Sailboat, 1970 Venture 17, fully equipped, trailer & outbd., $1,850. 213-389-2079.

Charbroiler, Lazyman, portable stand, $30. 213-644-6384.

Motorcycle, Honda 70, 4-spd., Moto-Cross bars, $240. 714-832-9054.

Surfboard, 6′2″, 1972 mod., $70. 714-892-7174.

Dehumidifier, Westinghouse, $65. 213-545-7149.

Boat, 12′ fiberglass outbd., 20 h.p. elec. Chrysler, less than 50 hrs., trlr., $1,195. 213-927-6140.

Desks, 2 child's chair, & hi-chair, $14.50. 213-376-4831.

Golf Irons, 1970, 1st flite 2-W, D2, med. alum. shafts, $50. 213-374-1889.

Sailboat, 1969 14′ Banshee, new sail, $450. 213-429-7879.

Boston Whaler, 55, 17′, 4-cycle eng. Bearcat, trailer American, $2,200. 213-370-3886.

Camper Trailer, 1970, Nimrod deluxe, fully equipped, sleeps 8, $1,700. 213-374-6445.

Piano, upright, std. brand, modern walnut, $165. 213-696-7529.

Sofa, convt. dble. bed, solid-steel frame, $50. 213-641-8355.

Table, white wrought iron, round, glass top, 42″ dia., 4 chairs, $69. 213-675-2387.

Motorcycle, 1971 Honda, CB350, 7,000 mi., $450. 213-674-4890.

End Tables, 2 matching French provincial, $20 ea. 213-534-2951.

Motorcycle, Honda 450 street, Fairing, 16″ rear whl., $875. 213-370-2462.

Turntable, Pioneer Pla35, & Empire 999 SE/X cartridge, $85. 213-675-6128.

Motorcycle, 1972 Steens X100, Hodaka engine, $275. 213-834-9205.

Dune Buggy Parts, to construct a Renault pwrd. dune buggy, incl. eng., $70. 213-821-9110.

Dressing Table, antique w/triple mirror, 2 dwrs., mahogany finish, matching small cane seated chair, many other access., $115. 213-474-5726.

Bar, 2 stools, green naug., formica top, $30. 213-644-2989.

Airplane, Cessna 150 Commuter, 1970 mod., elec. T&B, remote compass, heated pitot, 300 com nav., no dn., take over pymts., approx. $6,750. 805-947-7020, 805-947-6412.

Cocktail Dresses, 2, knee length, size 18½ tall, $10 ea. 213-545-7952.

Poker Table, w/masonite cover, $17.50. 213-675-3957.

Ski Boat, 16′ Starcraft Jupiter runabout, 55 h.p. Chrysler outbd., trailer, $1,500. 213-375-3977.

Ditto Machine, Heyer mod. 70 Mark 3, $50. 213-326-0279.

CB Radio, base or mobile 23 ch., many extras, $175. 213-676-5787.

Tent Trailer, sleeps 6, ice box, sink & storage, $375. 213-371-2783.

Surfboard, 9′, $40. 213-329-1861.

Camera, Pentax Spotmatic outfit, 2 bodies, 28 f2.8, 35 f3.5, 50 f1.4, 105 f2.8, 200 f4 lenses, cases, many access., $450. 213-541-2071.

Adding Machine, Burroughs elec., $48. 213-675-4256.

Travel Trailer, 1959, 16′ Shasta, elec. brakes, $400. 213-326-5566.

Camera, Minox B, w/flash, $85. 213-378-1432.

Telescope, Sears Varipower, 60 MM, 15/30/45/60 pwr. settings, tripod, $25. 213-372-0540.

Honda Scout, 1961, rebit. eng., equipped for street, $65. 213-675-2159.

Washer, Maytag w/load levels & fab. controls, $75. 213-679-6672.

Dining Table, w/2 boards, 4 side & arm chairs, burled birched, Med. hand-carved, $85. 213-294-4941.

Trailer, furn., bath, 2-bdrm., dps., cpts., awning cover porch & stor. shed, $3,900. 213-375-0017.

Pups, Labrador Retriever, blacks & yellows, AKC reg., $90-$125. 213-377-6658.

Radio, Hallicrafters S240, AM/FM, short wave, all solid state, $40. 213-599-7009.

Miscellaneous For Sale

Coins, 55 rolls of circulated Lincoln cents, in plastic tubes & storage boxes, 1936-P-D-S to 1964-P, $69.65. Box 1201.

Tape Recorder, TC-500 Sony, incl. 2 mikes, 20 W. sound system, $200. 213-265-2935.

Motorcycle, 1970 Honda Trail 90, street, $275. 213-378-4422.

Sofa, custom 2-pc., 8½′, $50. 213-645-7972.

Water Pipe, 12 pcs. ¾″ galv., 20′ lg., $3 pc. 714-774-4458.

Piano, remodeled upright, light wood grain, $150. 213-941-3804.

Wanted to Buy

Fairing, brown, metal-flake, w/windshield, in good condition for Honda CB500K1. 714-774-4187.

Trumpet, reasonably priced. 714-897-2007.

Lathe, 5″ Atlas or similar. 213-545-5960.

Utility Trailer, box-type, metal or wood, 5′x8′ or larger, single or tandem axle. 213-633-8682.

Tool Box, roll-a-way, prefer 8-dwr. model, Sears or equivalent. 213-374-2915.

Northrop Radio Club wishes to buy antenna rotator AR-33, AR-44, or HAM-M, in working order or we can repair. 213-374-8289.

House, 2-bdrm., Torrance, Redondo, Walteria area. 213-377-4173.

Free (To Be Given Away)

Dog, small female, 1 yr. old. 213-676-0516.

Trade

Tires, 5 F78-14 blackwall, used, trade for 3 books of Blue Chip stamps per tire. 213-597-5232.

TV, Motorola 23″ color, console, 2 yrs. old, trade for TV of like value in RCA portable 21″ color w/stand. 714-828-2857.

Personals

Ride Wanted, 7 a.m.-3:42 p.m., Market & Regent, Inglewood to Plant 3, Aircraft ext. 1686.

Ride Pool partners wanted, 8 a.m.-4:42 p.m., Orange County to Hawthorne, NRTC ext. 4591, 714-630-1629.

My sincere thanks & appreciation to all my Northrop friends & co-workers for the flowers & expressions of sympathy on the passing away of my father. FLORENCE R. PETERSEN.

We wish to extend our deep appreciation for the kindness extended to us during the recent passing of Reginald I. "Bob" Hampton, our beloved husband & father. IDA L. & REGALEEN HAMPTON.

The families of Betty Wooldridge, mother & sister, Rose Roeser, wish to convey their appreciation & gratitude for the flowers sent by Northrop & donation made by Product Support to the Cancer Foundation in behalf of their father & husband.

I wish to express my most sincere thanks & appreciation for the lovely planter & kind expressions of sympathy on the recent death of my brother. NANCY MYHRE.

Our sincere thanks to all of Floyd's friends for the many cards, flowers & kind expressions of sympathy at his passing. MRS. FLOYD HEAGLE & FAMILY.

We wish to extend our appreciation for the help & comfort extended by our many friends at Northrop during our recent loss. THE OSBORN FAMILY.

Person or persons witnessing auto accident Oct. 30, 7:40 a.m. at Prairie & Redondo Beach Blvd., please call 213-542-4091.

Car Pool, 7:30 a.m.-4:12 p.m., San Bernardino Fwy. & Garey Ave., Pomona, to Plant One, make pickups at Covina, Puente, Glendora or Brea, Aircraft Div. ext. 1293, 714-593-4811.

For Sale or Trade

Vega, 1971, G.T., fully equipped, stereo tape, tent, $1,995, or trade for Honda & cash. 213-291-6075.

NORTHROP NEWS

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DISCUSSING A special toll free health information service telephone line to serve the Centinela Valley are, from left, George L. Matuskey, administrative assistant, Aircraft Division Medical Department; Bea Weiskopf, director, Social Services, Daniel Freeman Memorial Hospital; Supervisor Kenneth Hahn; and Sister Mary Ester, administrator, Daniel Freeman Memorial Hospital. Health information and local referrals are now available to residents of Westchester, Inglewood, East Inglewood, Lennox, El Segundo, Hawthorne, Lawndale, and Gardena, through a new toll free number, 673-1592, on a 24-hour basis. Northrop is assisting the project by buying the paper and printing 500,000 information flyers.

Worms Tell Researchers About Space Flight Effects

Tiny worms that normally live in the intestinal tract of mice are telling scientists something about the possible effects of long space flights, according to a report made at NASA's Manned Spacecraft Center, Houston, by Richard A. Long, a Northrop Services Inc. research assistant.

The worms—called nematodes—were placed in a special biological container aboard the Apollo 16 spacecraft last April, Mr. Long said.

Study of the worm larvae following the flight showed a serious reproduction deficiency.

"Future flights involving man in space may reveal that this deficiency is manifest in other, more advanced animals," Mr. Long said.

For the experiment the nematode larvae were divided into five groups. Three of the groups were carried on the spacecraft and two were left behind to serve as ground controls.

Two of the groups were exposed to ultraviolet radiation from the sun when Astronaut Thomas K. Mattingly made a space walk. The third group was not exposed. Nevertheless, all three groups subsequently exhibited reproduction deficiencies.

Mr. Long said he had no idea what there is in outer space that could cause this effect. Nor is he suggesting at present that there is any link between man and nematodes.

However, he suggested that the reproductive functions of man be tested for long space flights, perhaps by flying sperm specimens and then testing the results of such a trip on their viability and other biological factors.

Such information is of great importance as future Skylab and manned flights to Mars keep men in space for increasingly long periods of time.

DIVIDEND DECLARED

The board of directors of Northrop has declared a quarterly dividend of 25 cents per share on Northrop common stock, payable Dec. 23 to common stock of record Dec. 4.

The board also declared a quarterly dividend of 36¼ cents per share on Northrop $1.45 cumulative perferred stock, payable Jan. 6, 1973 to preferred stock of record Dec. 20.

Northrop is now listed as a diversified advanced-technology company which operates primarily in the fields of aircraft, communications, electronics, construction and systems management.

Northrop Purchases Firm in New Jersey

Northrop Corporation has acquired for an undisclosed cash sum a 23 per cent interest in General Energy Resources, Inc., of Burlington, N.J.

General Energy is a leading mechanical construction firm specializing in the fabrication and installation of piping for nuclear and conventional power plants, water pollution control systems, desalinization and water treatment plants, and petrochemical processing and manufacturing facilities. General Energy's management estimates that sales for 1972 will be approximately $23 million. Its backlog at Sept. 20, 1972, was $48 million. Northrop lists annual sales of more than $600 million.

Aside from its merit as an investment, the purchase will give Northrop an understanding of the technology of two important new fields: nuclear power plants and water pollution abatement facilities, which may offer new opportunities for the application of aerospace technology.

The purchase was made from William J. Doyle, owner and chief executive of General Energy Resources. To assure close coordination, Mr. Doyle has been named a Corporate vice president of Northrop.

NAL Research Facility Praises George Fuller Co.

The George A. Fuller Company, a New York construction subsidiary of Northrop, was paid tribute by the American Society of Civil Engineers for providing architectural, engineering and construction management services for the construction of a 200 BeV accelerator.

A project of the National Accelerator Laboratory (NAL) in Illinois, the world's largest proton accelerator is being built to study nuclear and subnuclear particles.

Dr. Edwin L. Goldwasser, deputy director of the NAL research facility, paid tribute to the Fuller Company and three other joint venture firms. He said, "We have insisted that our structures perform better than their specifications and that they be esthetically pleasing. All of this they have accomplished and always with understanding and good humor," he added.

Master planning for the 6,800-acre site required considerations similar to urban development—land use, impact on surrounding communities, road layout, personnel movement through the experimental facilities, and utility distribution.

COMMUNITY INVOLVEMENT

The last issue of the Northrop News included a questionnaire on individual community involvement. Results of the survey indicate that Northrop employees spend an average of 10 hours per week each in community service activities. With a nominal work force of 15,000 people, this equals over seven million hours per year devoted by Northrop employees to their communities!

MEDALS ON SALE

The NRC Coin Club has announced the striking of a Commemorative Medal to celebrate the Club's Silver Anniversary this year.

Starting in 1947 as the joint Coin and Stamp Club, it is one of the oldest consecutive activities of the NRC.

The medals are at all Personnel Activities offices, according to Club Commissioners Jack Wilson, Aircraft Division, and Dick Reamer, Electronics Division.

NRC COIN Club's commemorative medal.

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